

February 2016 Water Supply Briefing

Feb 4, 2016

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Colorado Basin River Forecast Center
National Weather Service
NOAA

Please mute your phone
until ready to ask questions



Today's Presentation

January Weather

Current conditions impacting forecasts
snowpack, soil moisture, El Niño event

2016 water supply forecasts overview

Upcoming weather and longer range outlook

Upper Colorado Situational Awareness (web page)

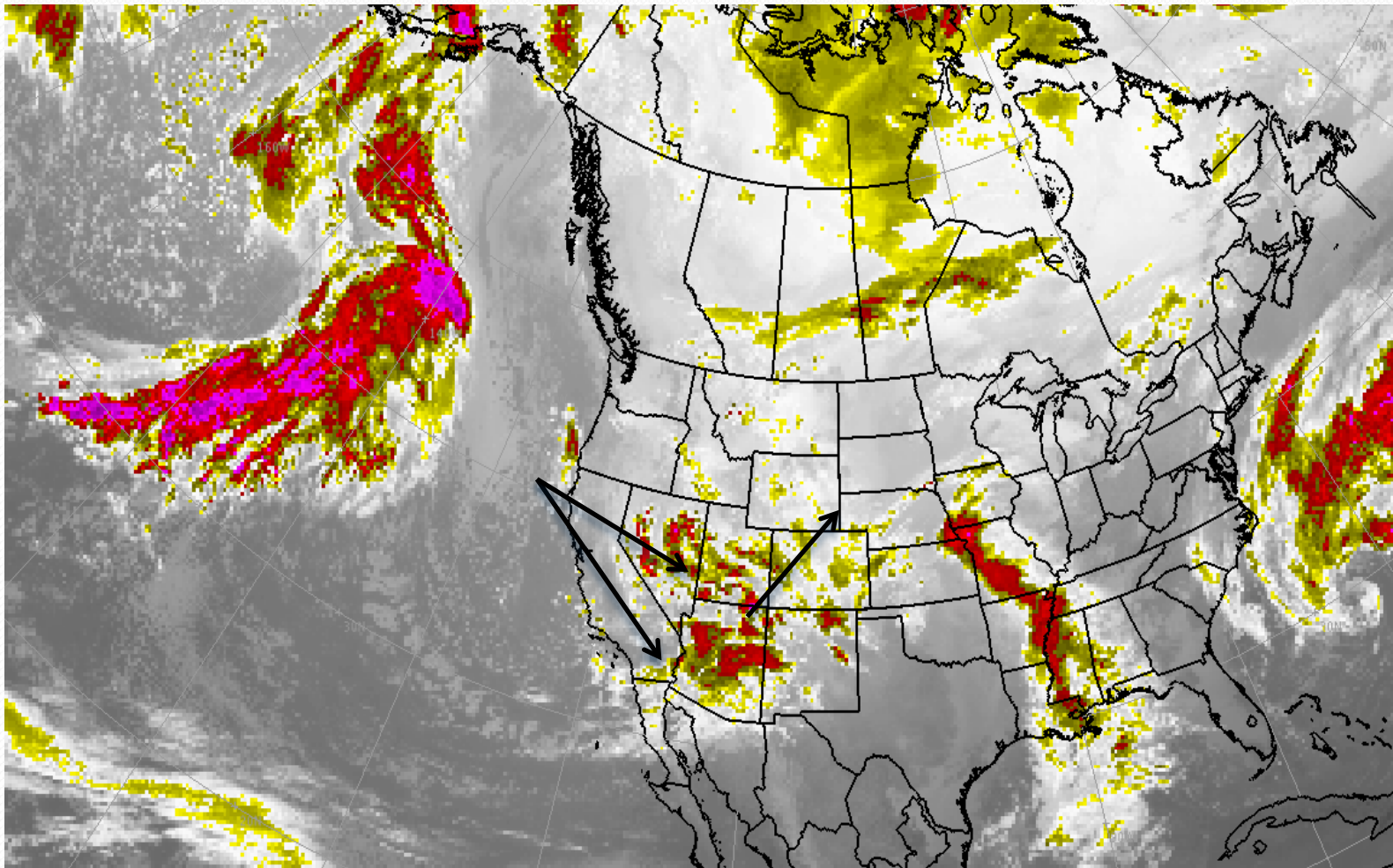
2016 water supply briefing schedule

Contacts & Questions

*** Please mute your phone until ready to ask questions ***

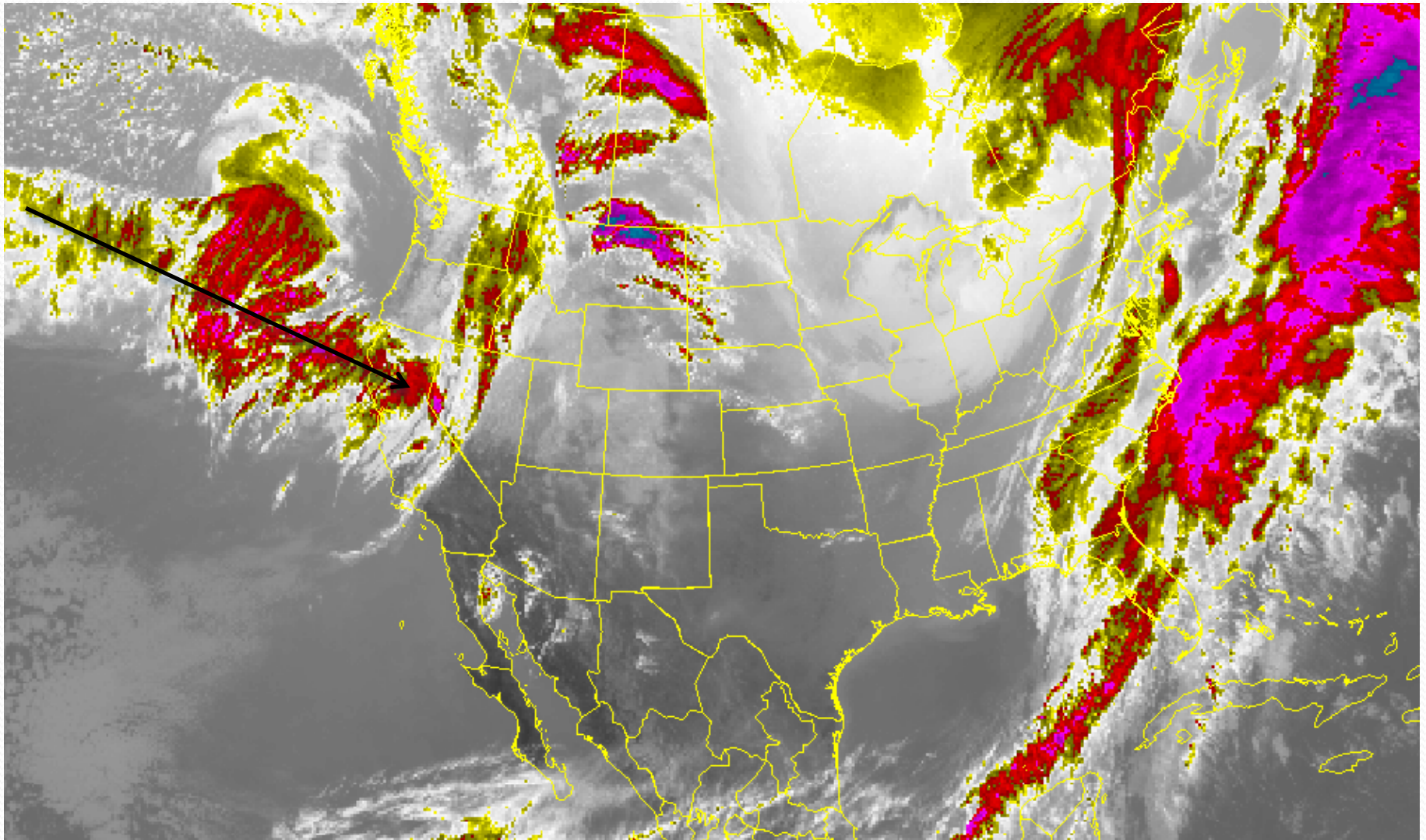
2016 January Weather

January 7th Satellite Image
Splitting Storm Systems – Various Precipitation Impacts



2016 January Weather

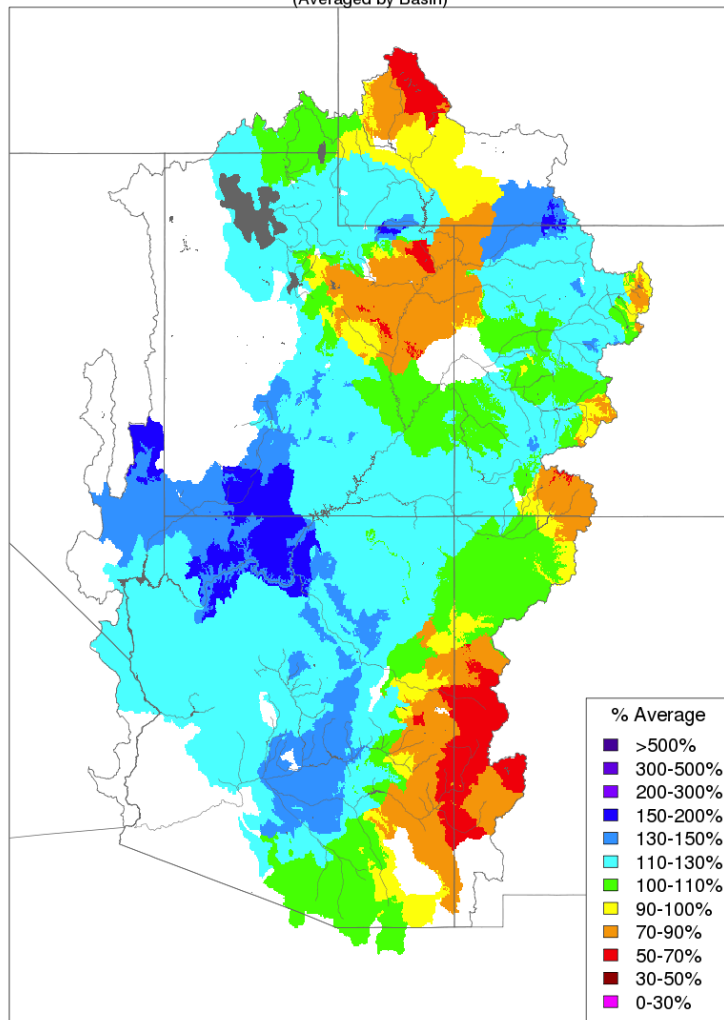
January 28th Satellite Image
Significant Pacific Moisture – Widespread Precipitation



January Precipitation & Temperature

Monthly Precipitation - January 2016

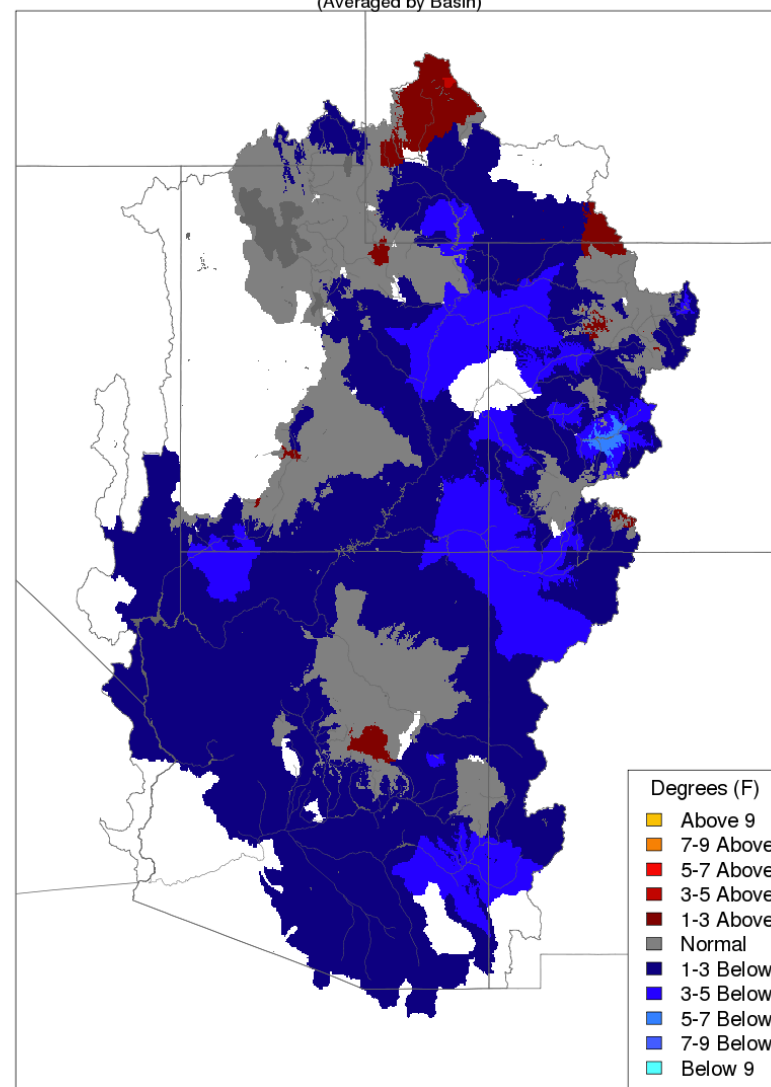
(Averaged by Basin)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Max Temp - Monthly Deviation - January 2016

(Averaged by Basin)

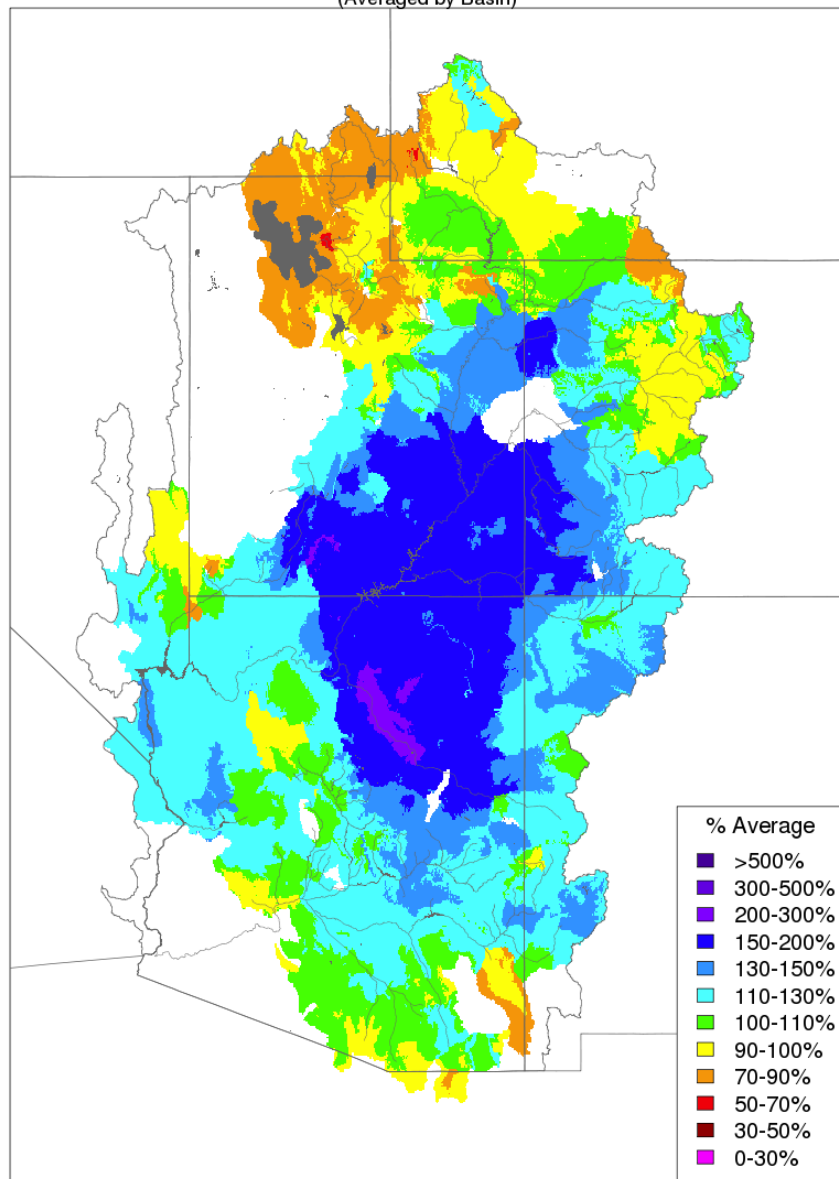


Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Water Year Precipitation

Water Year Precipitation, October 2015 - December 2015

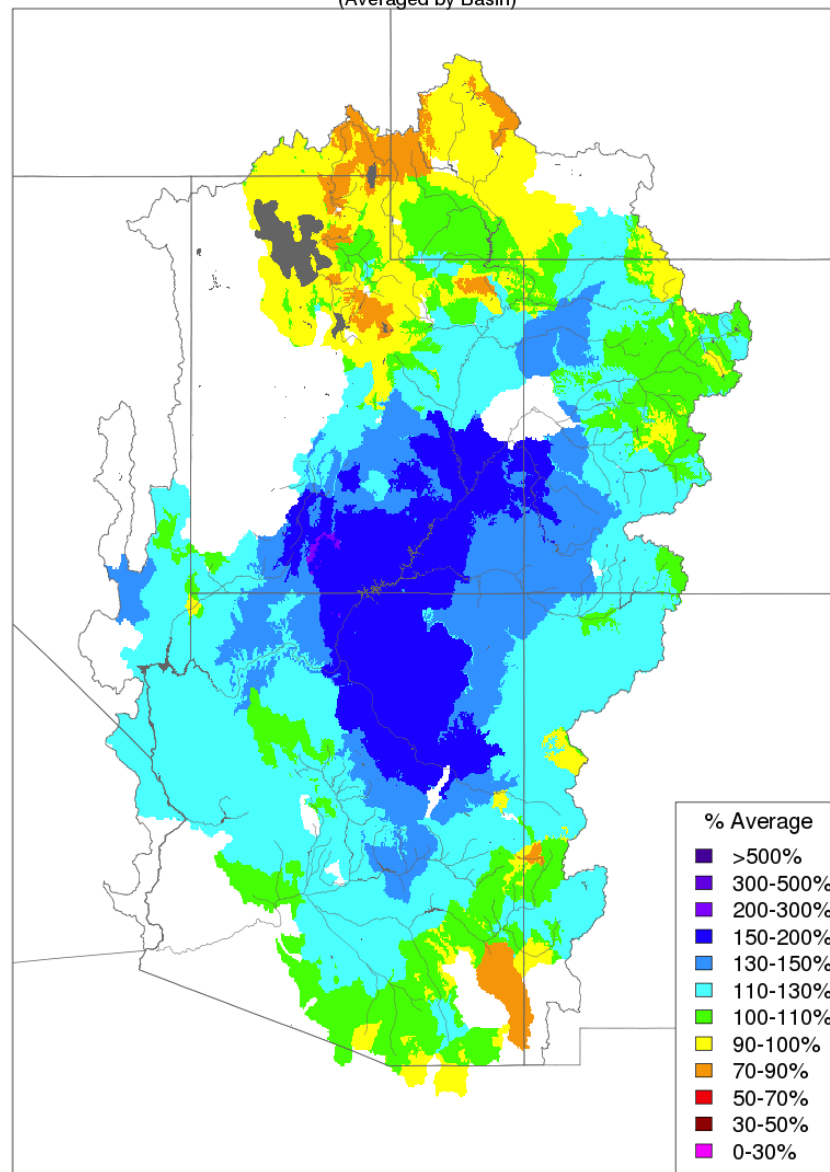
(Averaged by Basin)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Water Year Precipitation, October 2015 - January 2016

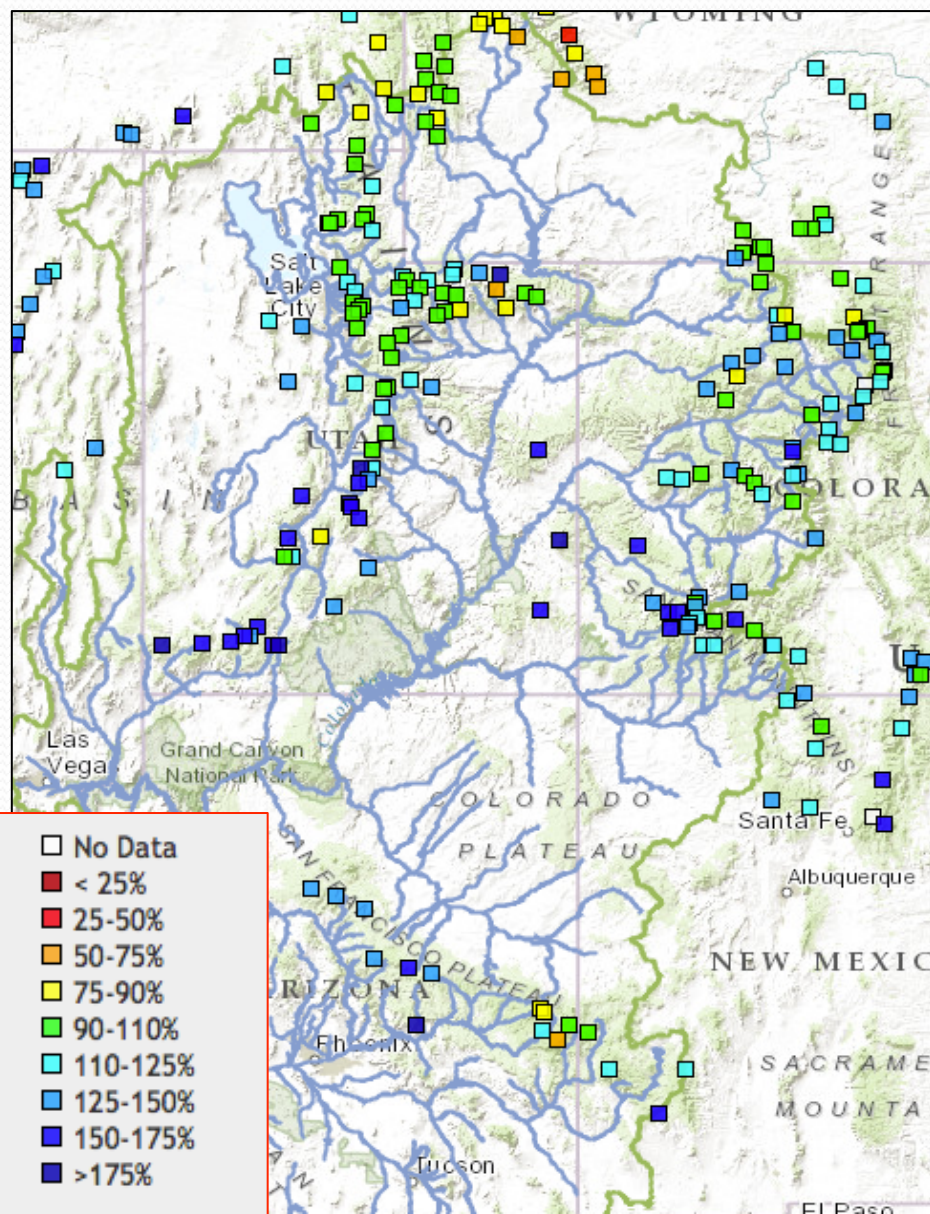
(Averaged by Basin)



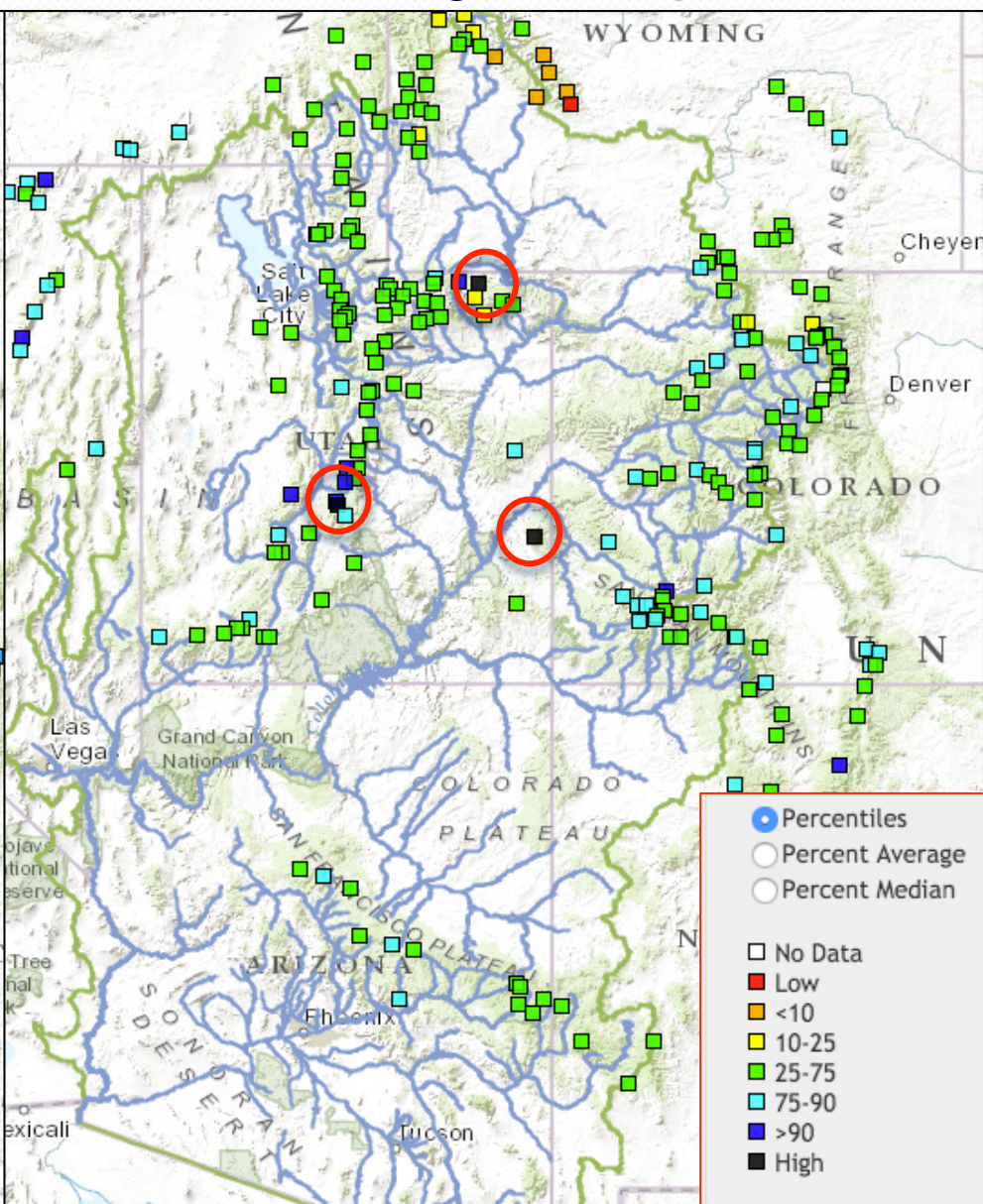
Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Snow – SNOTEL Network

Snow (% average): February 3 2016

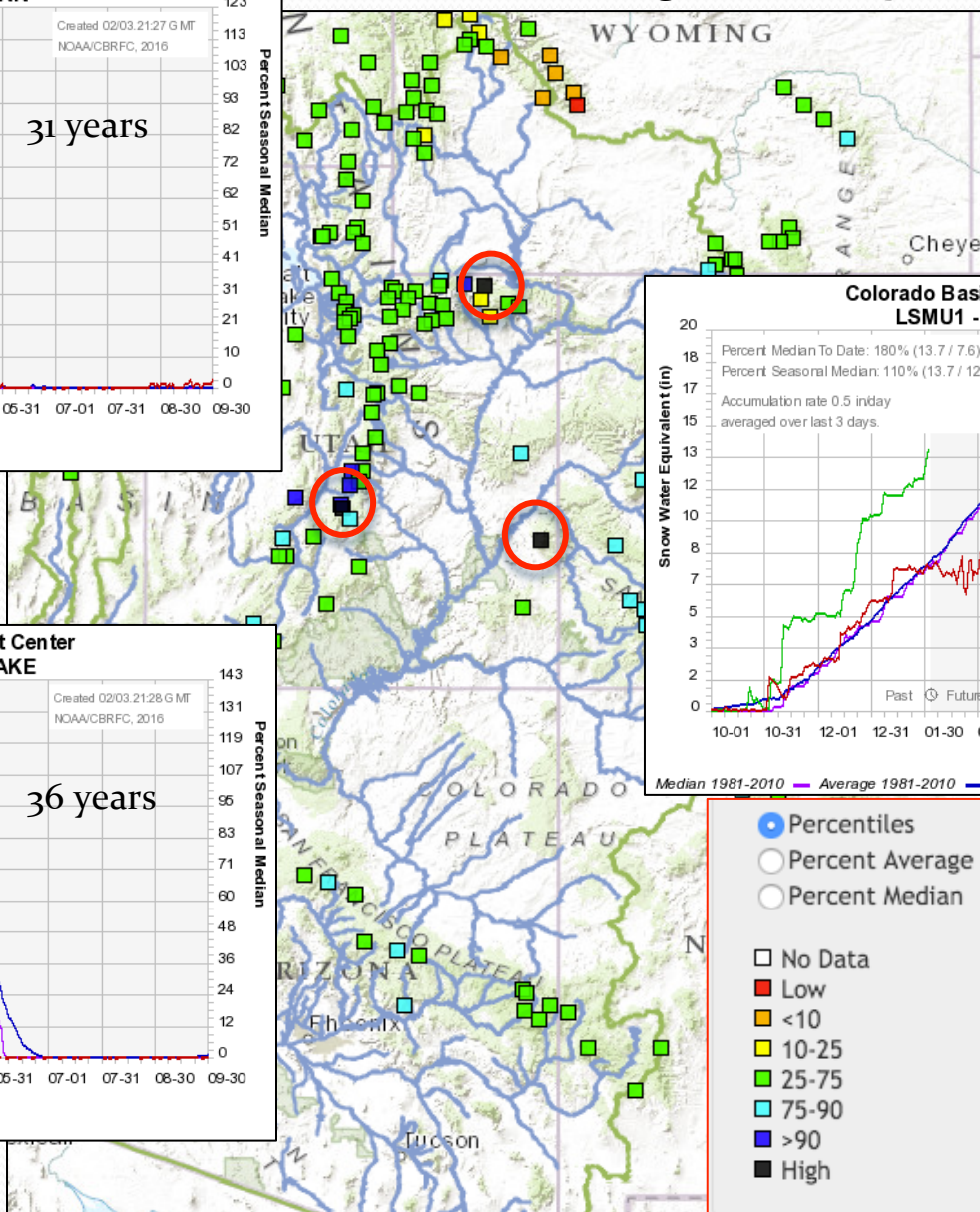
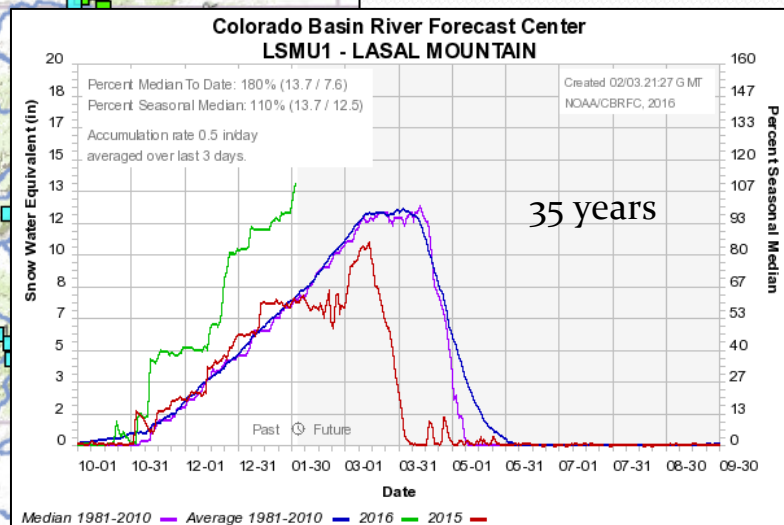
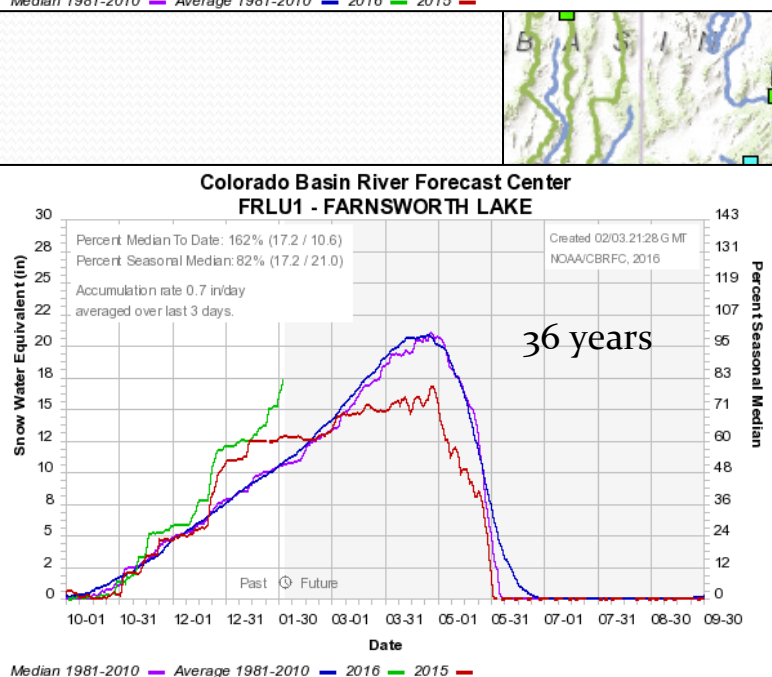
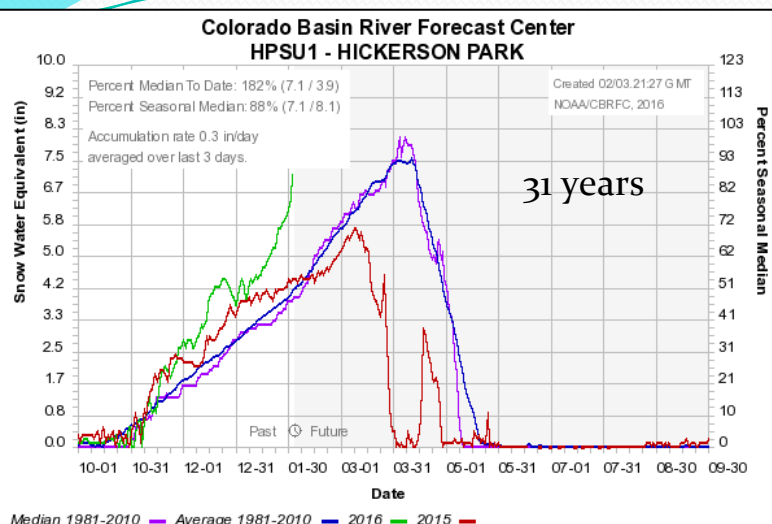


Snow (ranking): February 3 2016



Snow – SNOTEL Network

Snow (ranking): February 3 2016

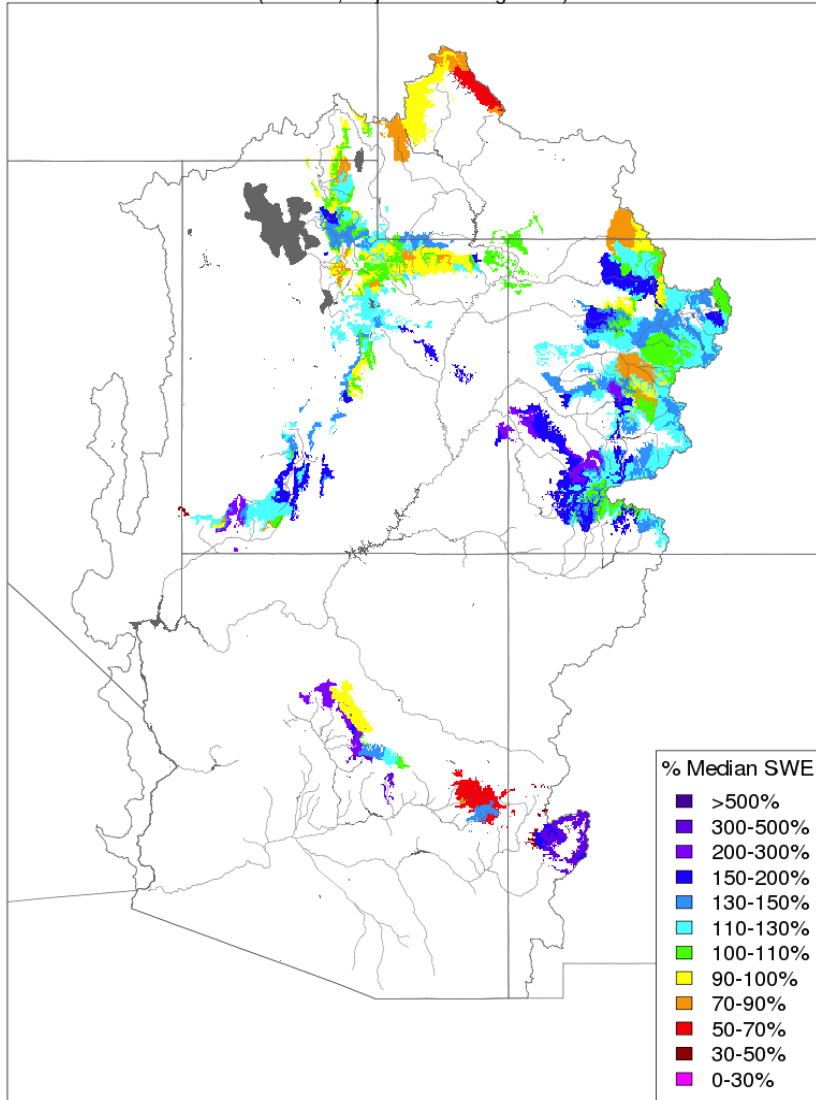


- Percentiles
- Percent Average
- Percent Median
- No Data
- Low
- <10
- 10-25
- 25-75
- 75-90
- >90
- High

Snow – CBRFC Hydrologic Model

Jan 1st 2016

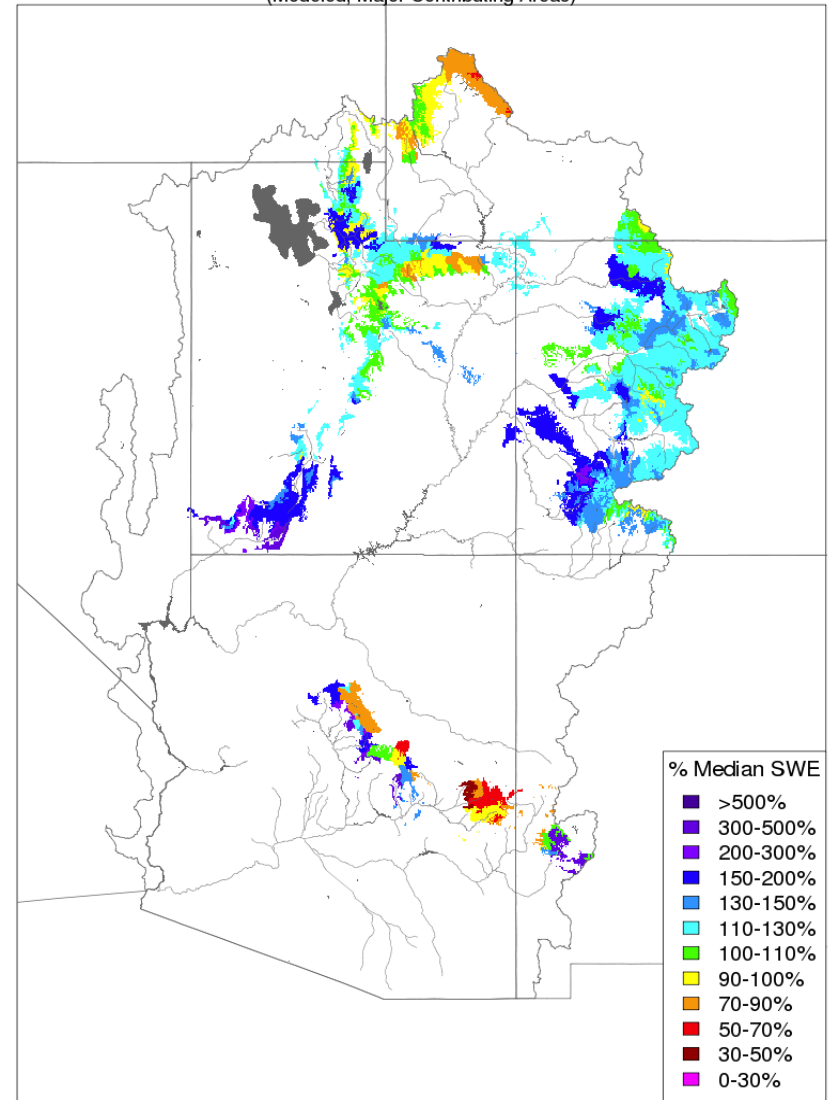
Snow Conditions - January 01 2016
(Modeled, Major Contributing Areas)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Feb 1st 2016

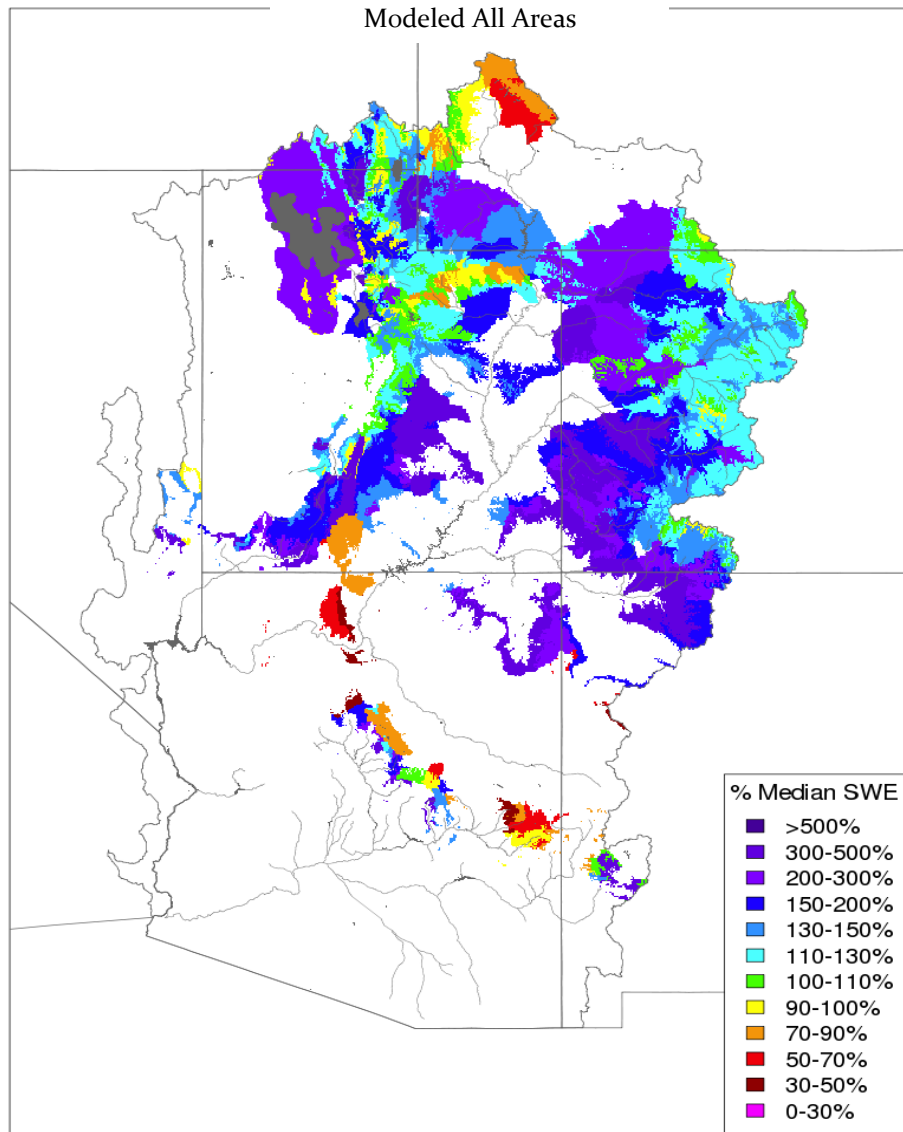
Snow Conditions - February 01 2016
(Modeled, Major Contributing Areas)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Snow – CBRFC Hydrologic Model

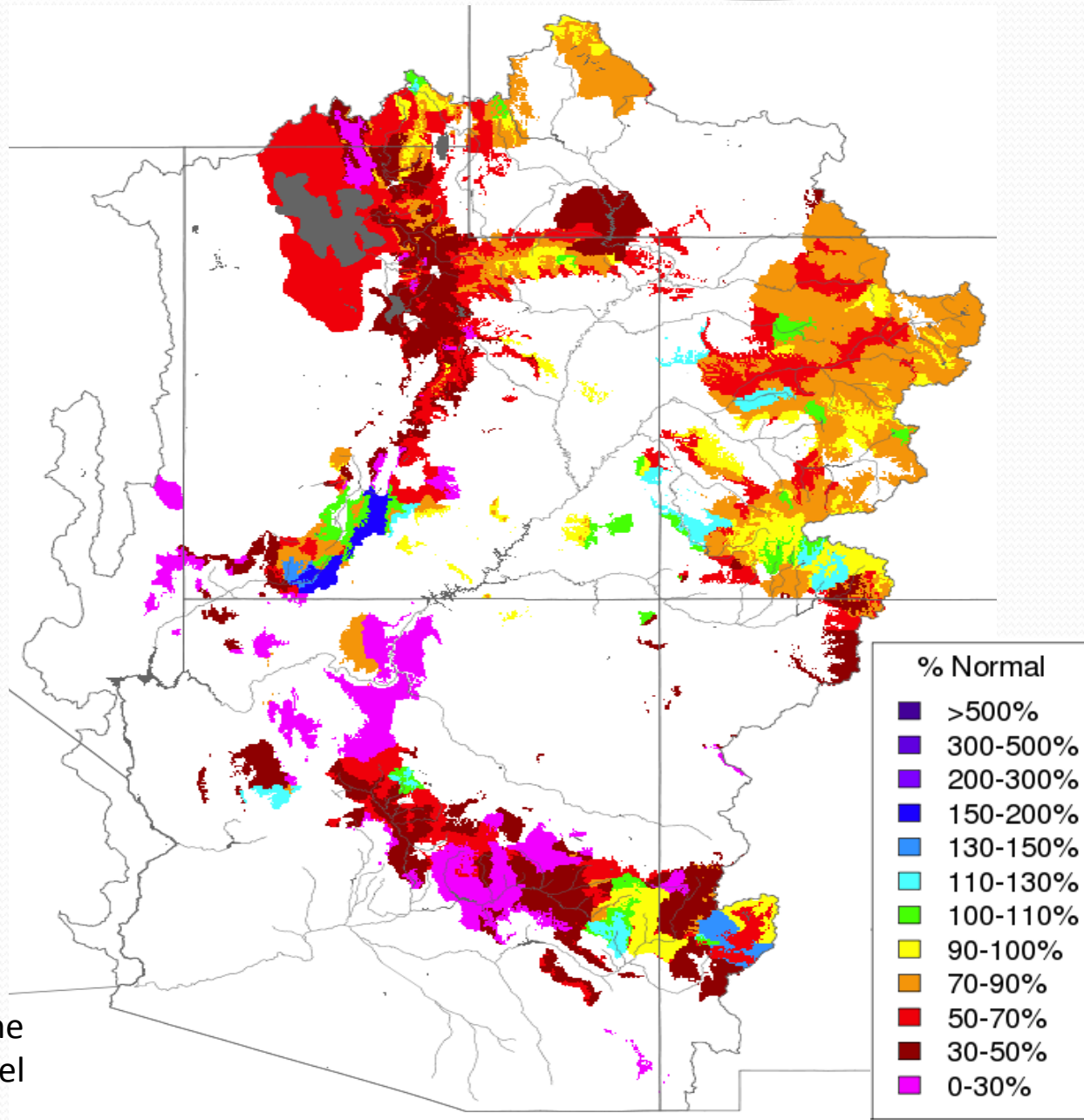
Snow Conditions - February 01 2016



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Soil Moisture

November 15, 2015

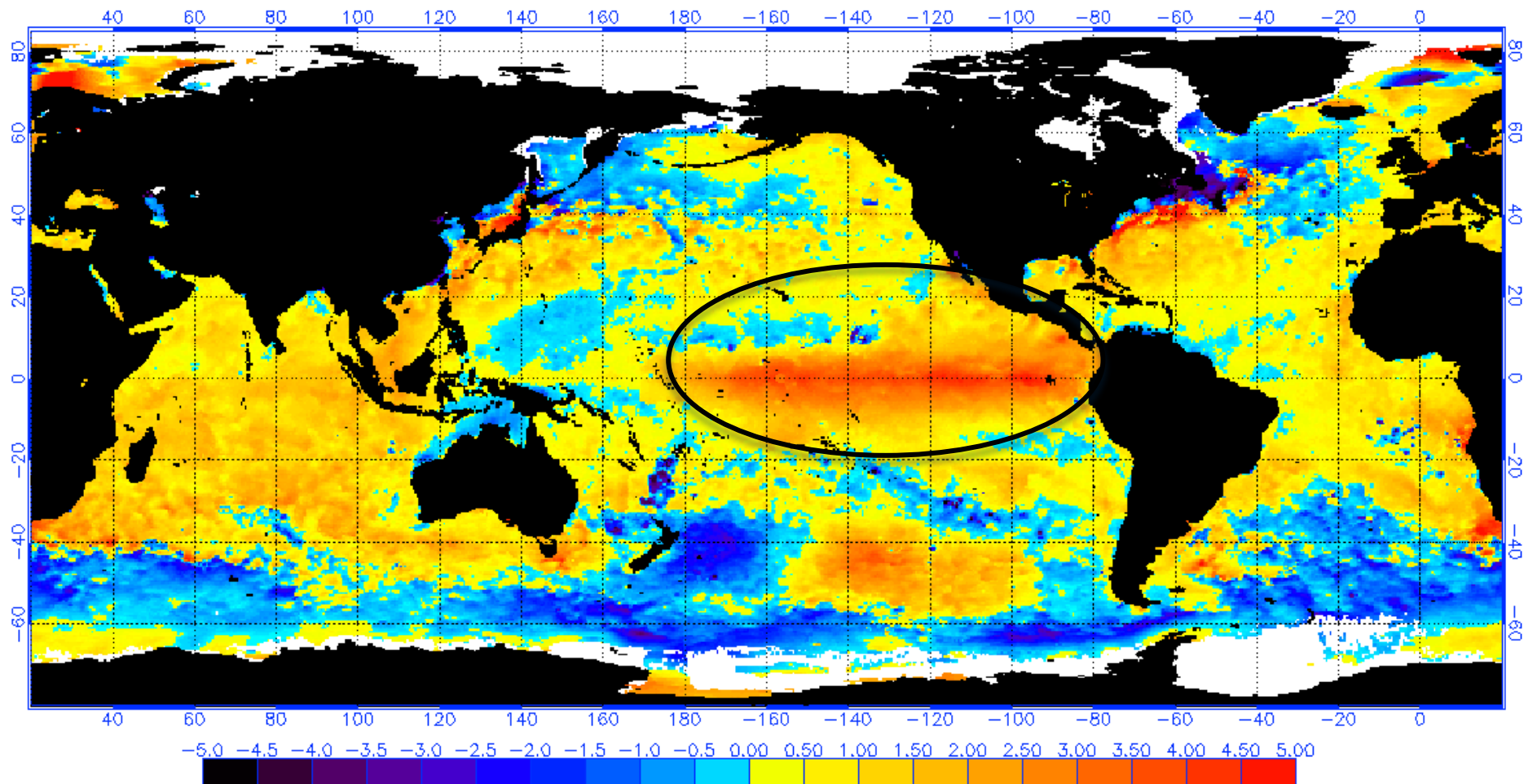


Soil Moisture
representation from the
CBRFC hydrologic model

El Niño Event

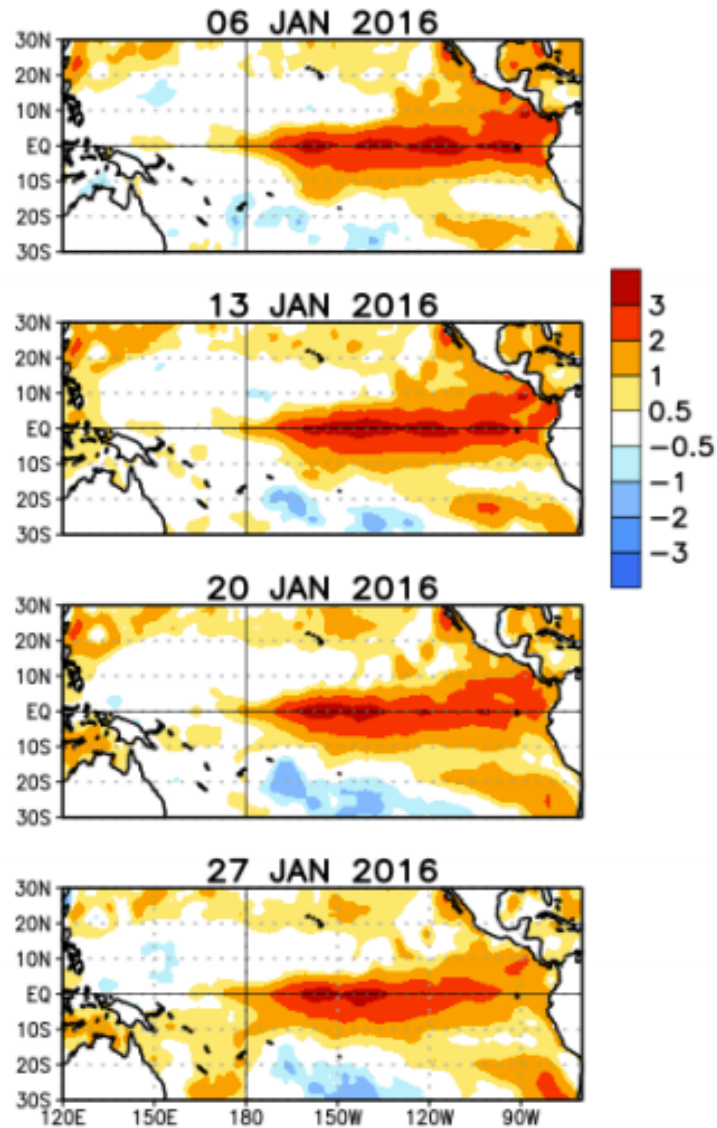
- Characterized by unusually warm temperatures in the equatorial Pacific Ocean
- Forecast Impacts: Primarily for Lower Colorado River Basin (Arizona), some affect in the Virgin River Basin, San Juan River Basin.
- Expected to slowly weaken to ENSO neutral late spring / early summer.

NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 1/7/2016
(white regions indicate sea-ice)



El Niño Event

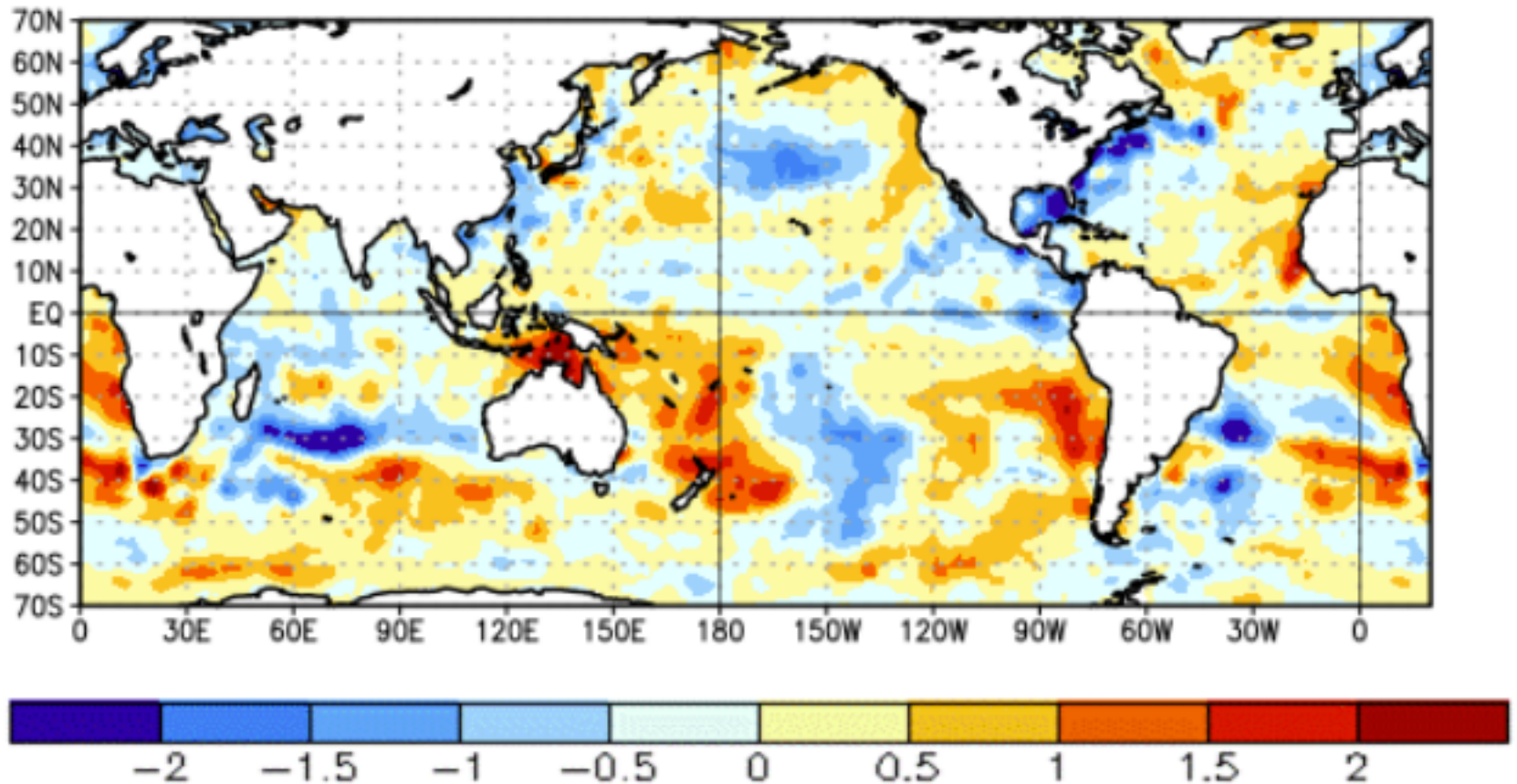
Weekly SST Anomalies (DEG C)



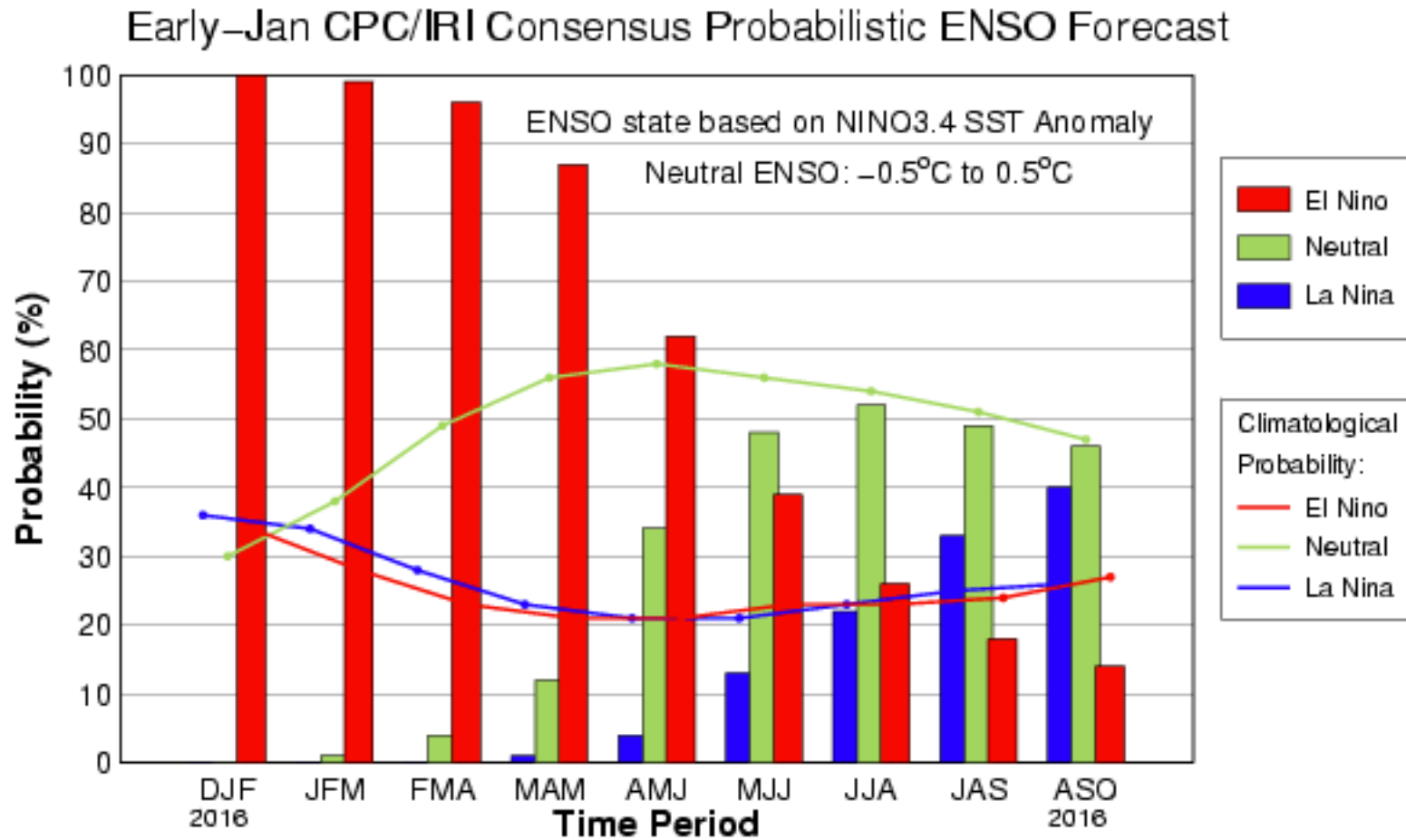
El Niño Event

Change in Weekly SST Anoms (°C)

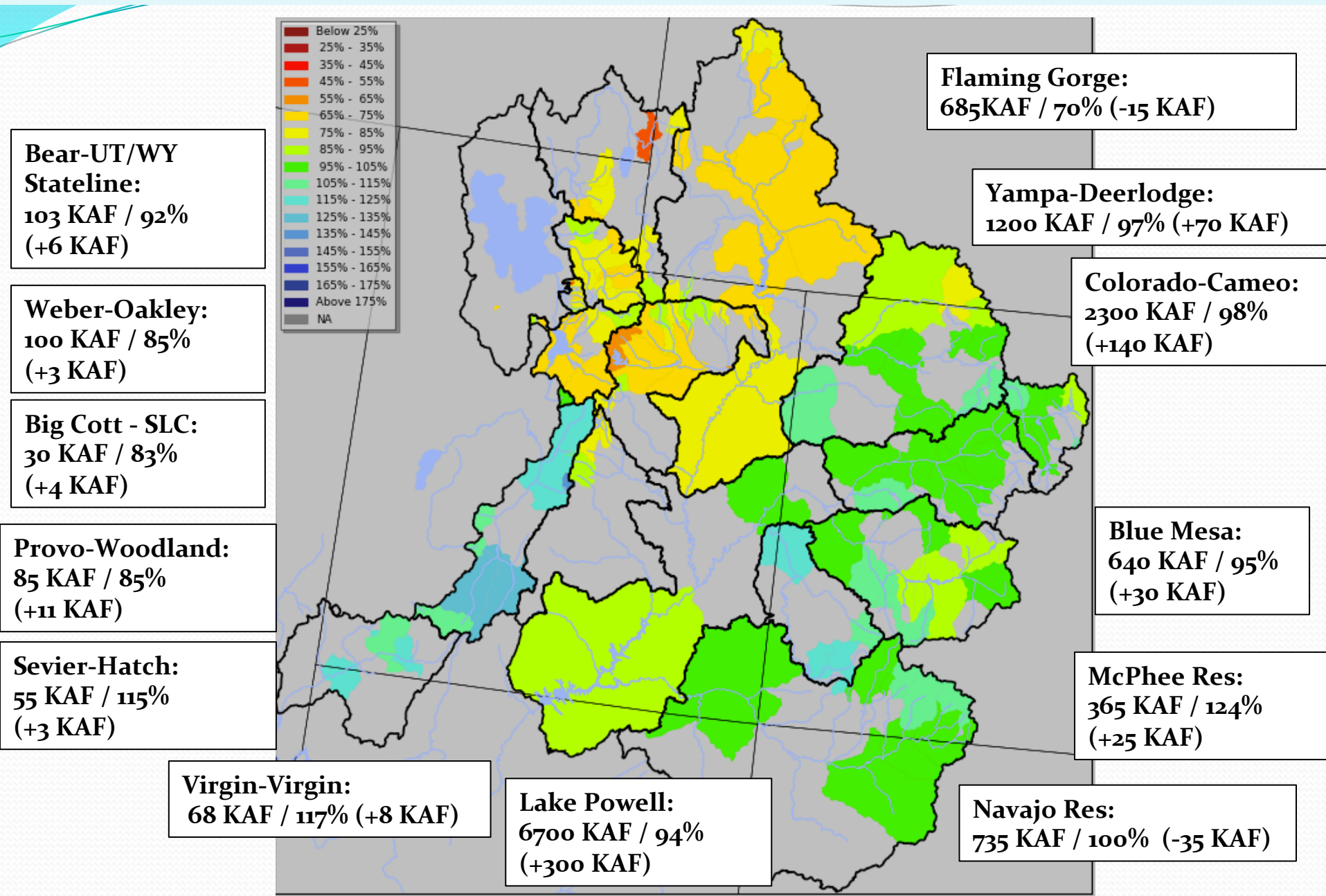
27JAN2016 minus 30DEC2015



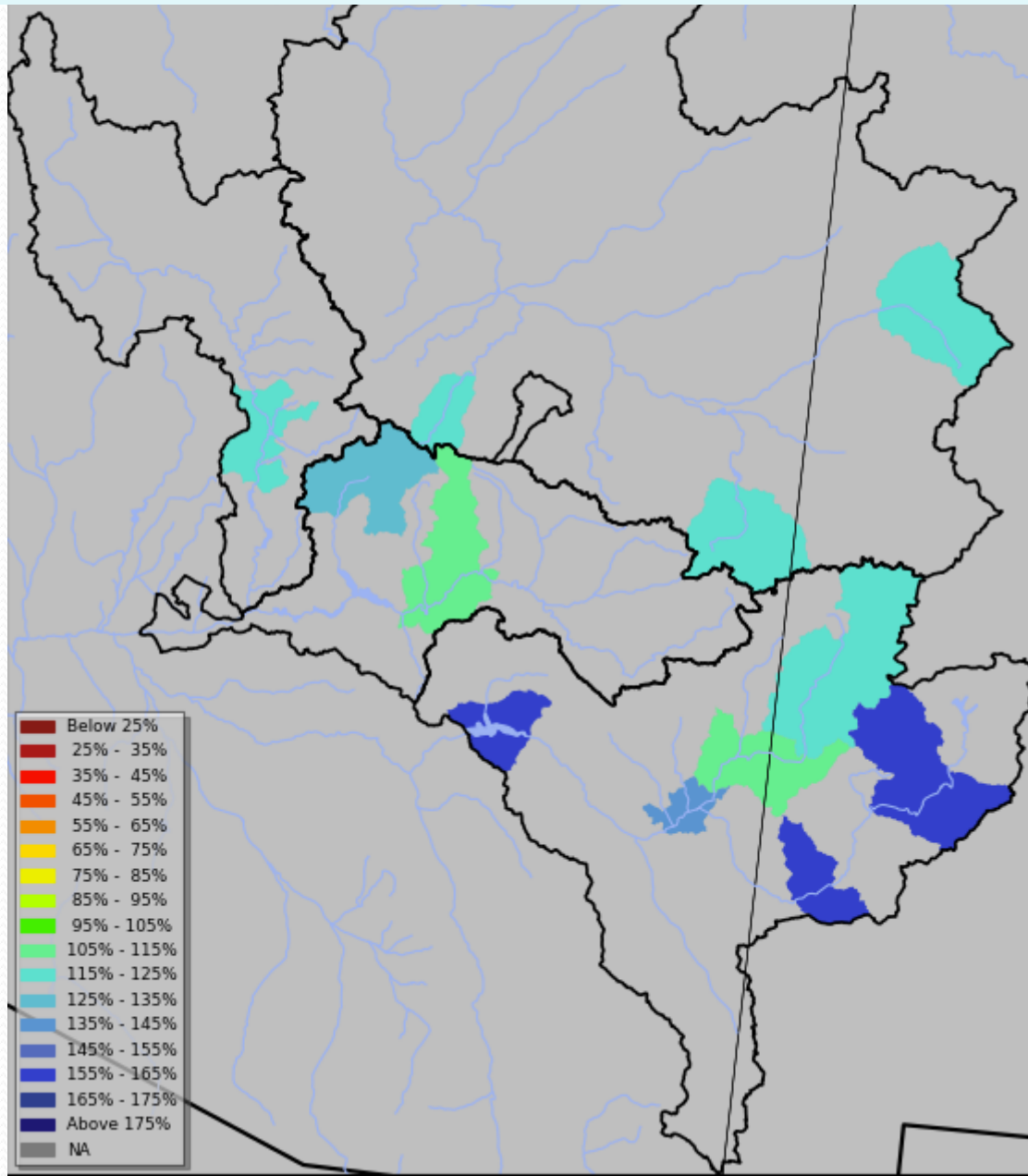
El Niño Forecast



April-July forecast streamflow volumes (% of 1981-2010 average)



Jan-May forecast streamflow volumes (% of 1981-2010 median)



Little Colorado-Lyman:
6.9 KAF / 132%

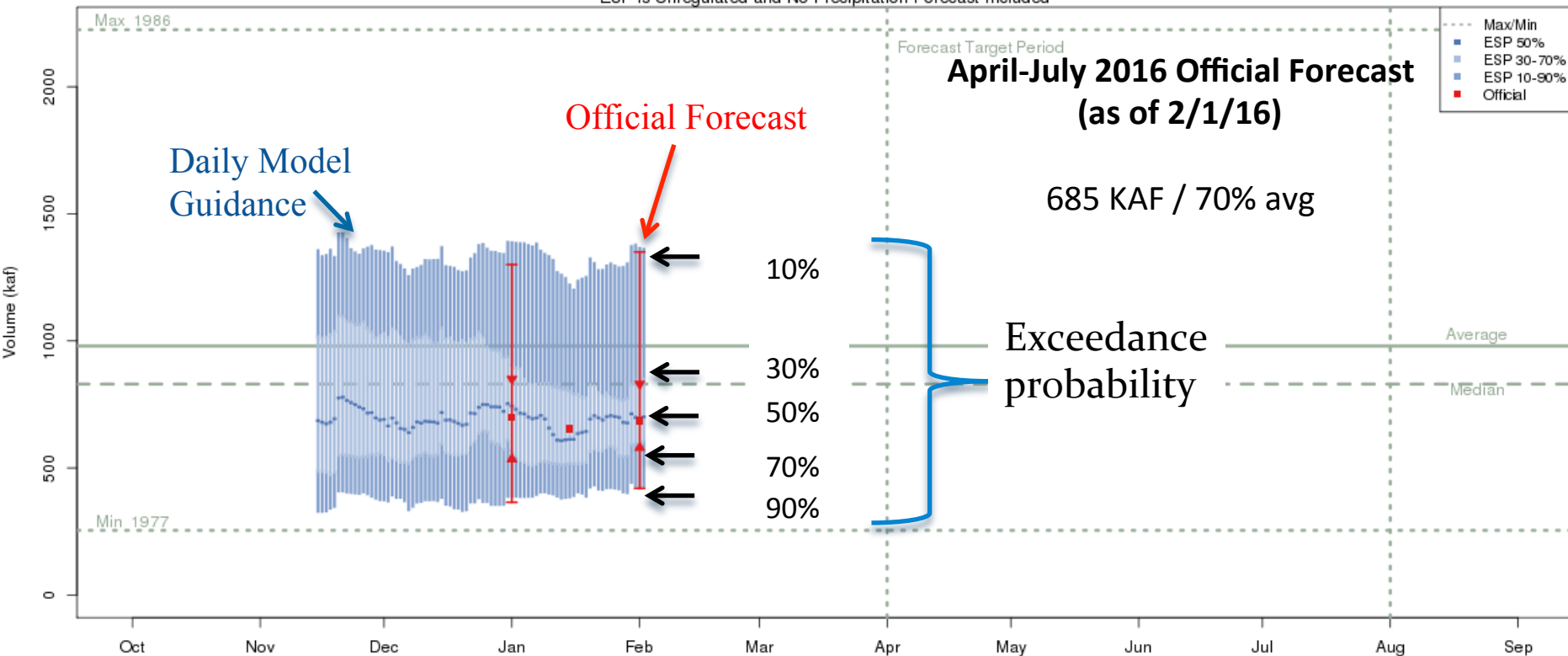
Verde-Horseshoe:
165 KAF / 121%

Salt - Roosevelt:
330 KAF / 115%

Gila-Gila:
78KAF / 156%

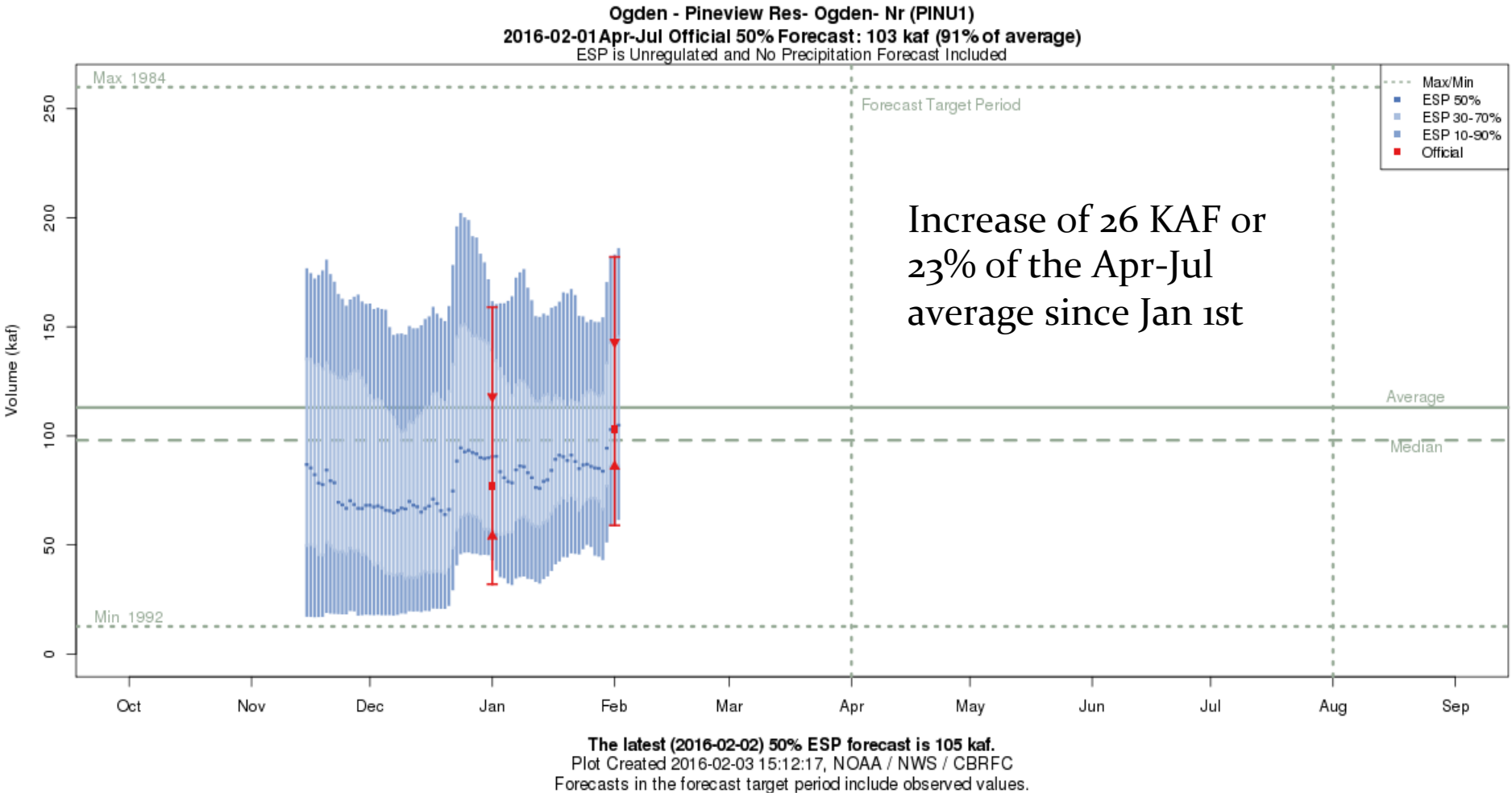
Forecast Evolution Plot – Flaming Gorge

Green - Flaming Gorge Res- Flaming Gorge Dam- At (GRNU1)
2016-02-01 Apr-Jul Official 50% Forecast: 685 kaf (70% of average)
ESP is Unregulated and No Precipitation Forecast Included

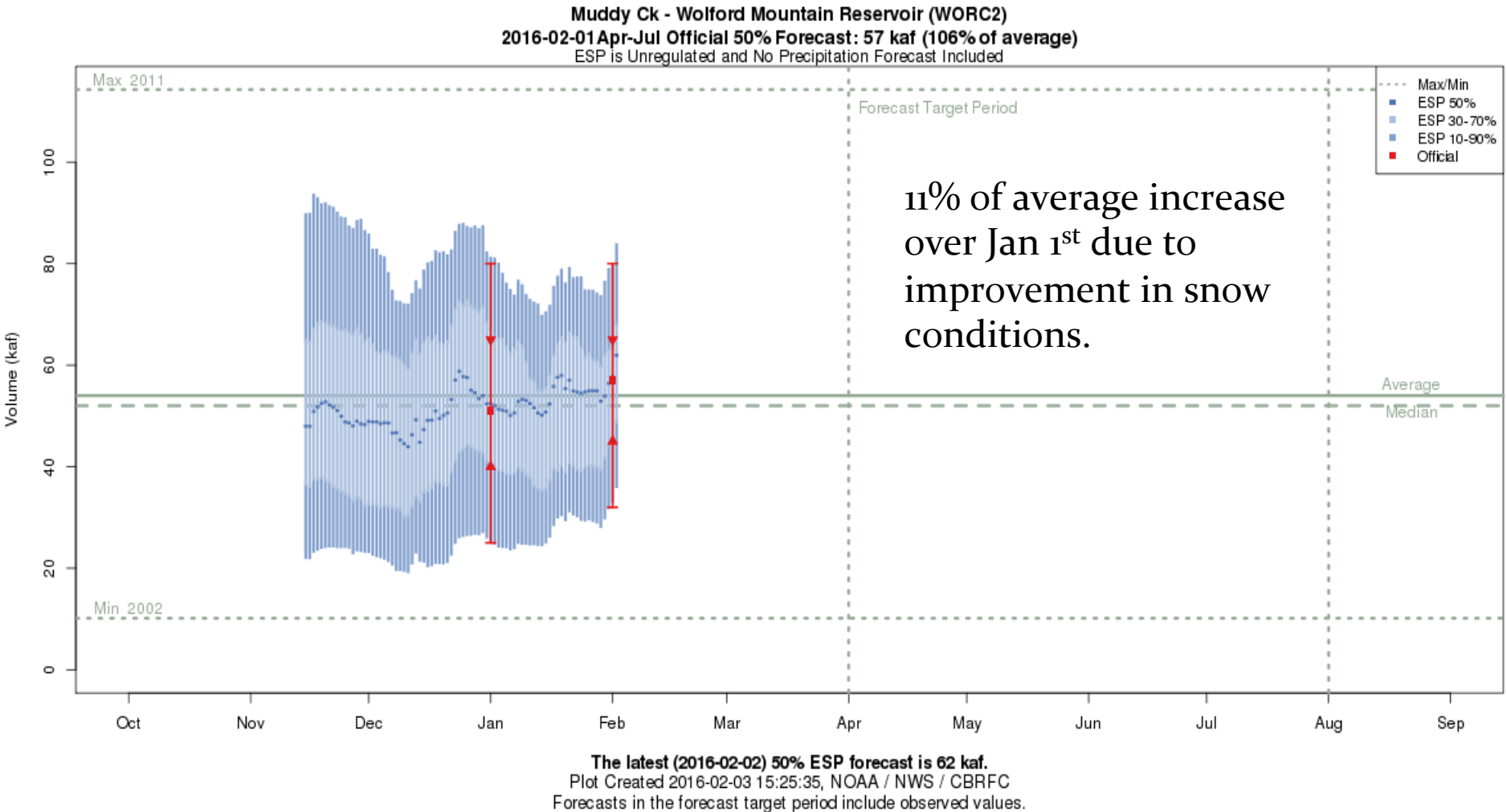


The latest (2016-02-02) 50% ESP forecast is 701 kaf.
Plot Created 2016-02-03 15:02:07, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.

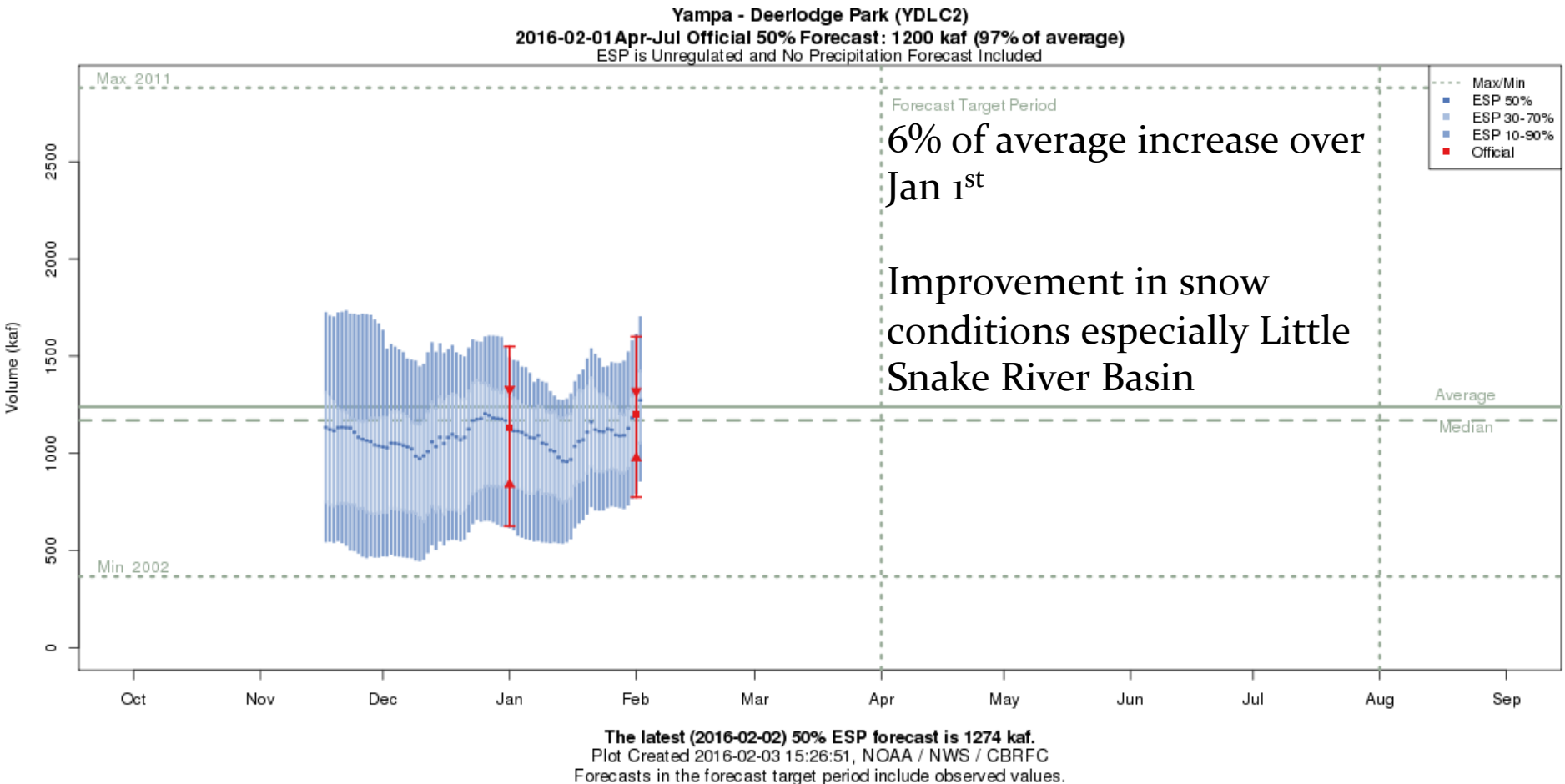
Forecast Evolution Plot – Pineview Reservoir



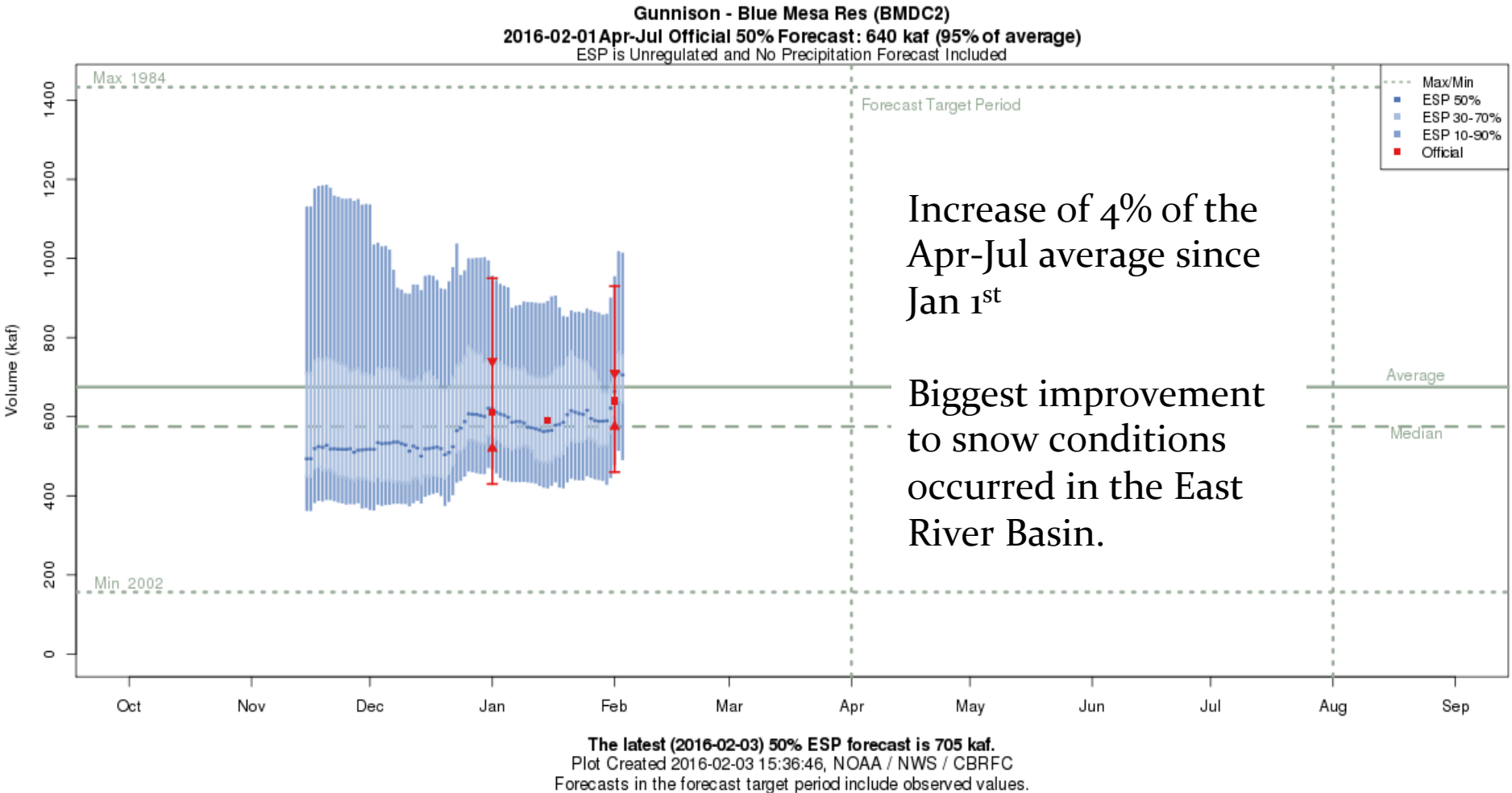
Forecast Evolution Plot – Wolford Mtn Reservoir



Forecast Evolution Plot – Yampa Deerlodge

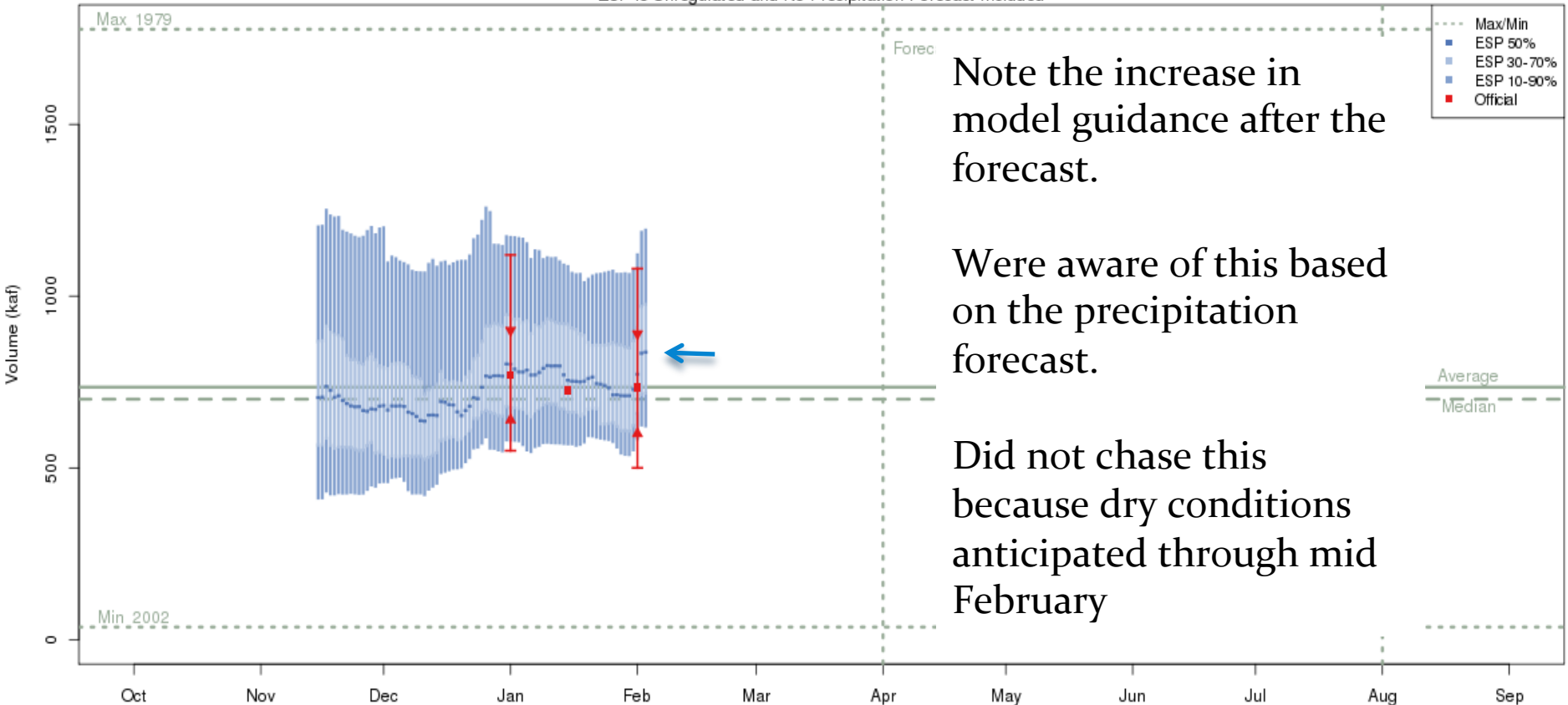


Forecast Evolution Plot – Blue Mesa Reservoir



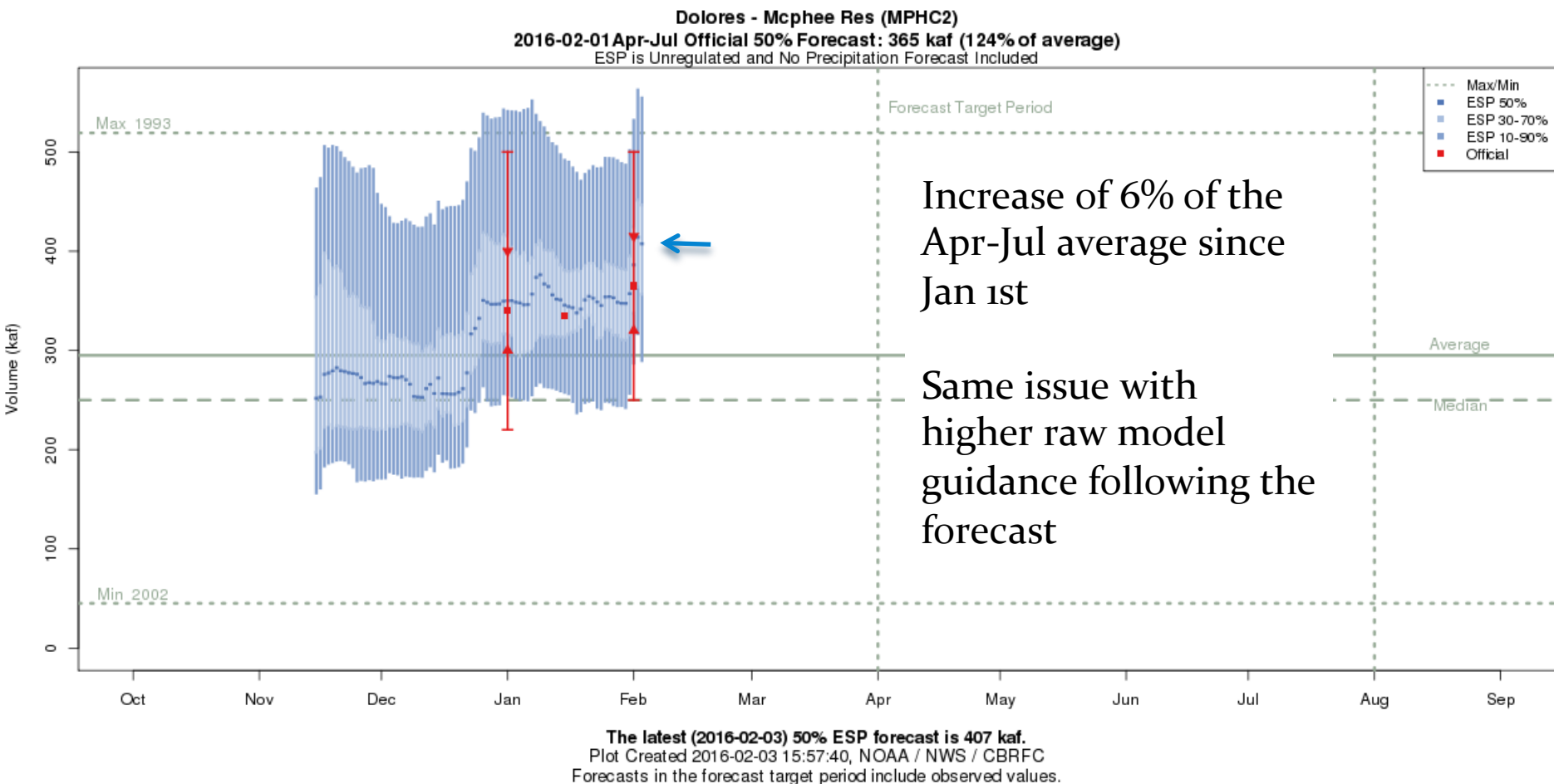
Forecast Evolution Plot – Navajo Reservoir

San Juan - Navajo Res- Archuleta- Nr (NVRN5)
2016-02-01 Apr-Jul Official 50% Forecast: 735 kaf (100% of average)
ESP is Unregulated and No Precipitation Forecast Included

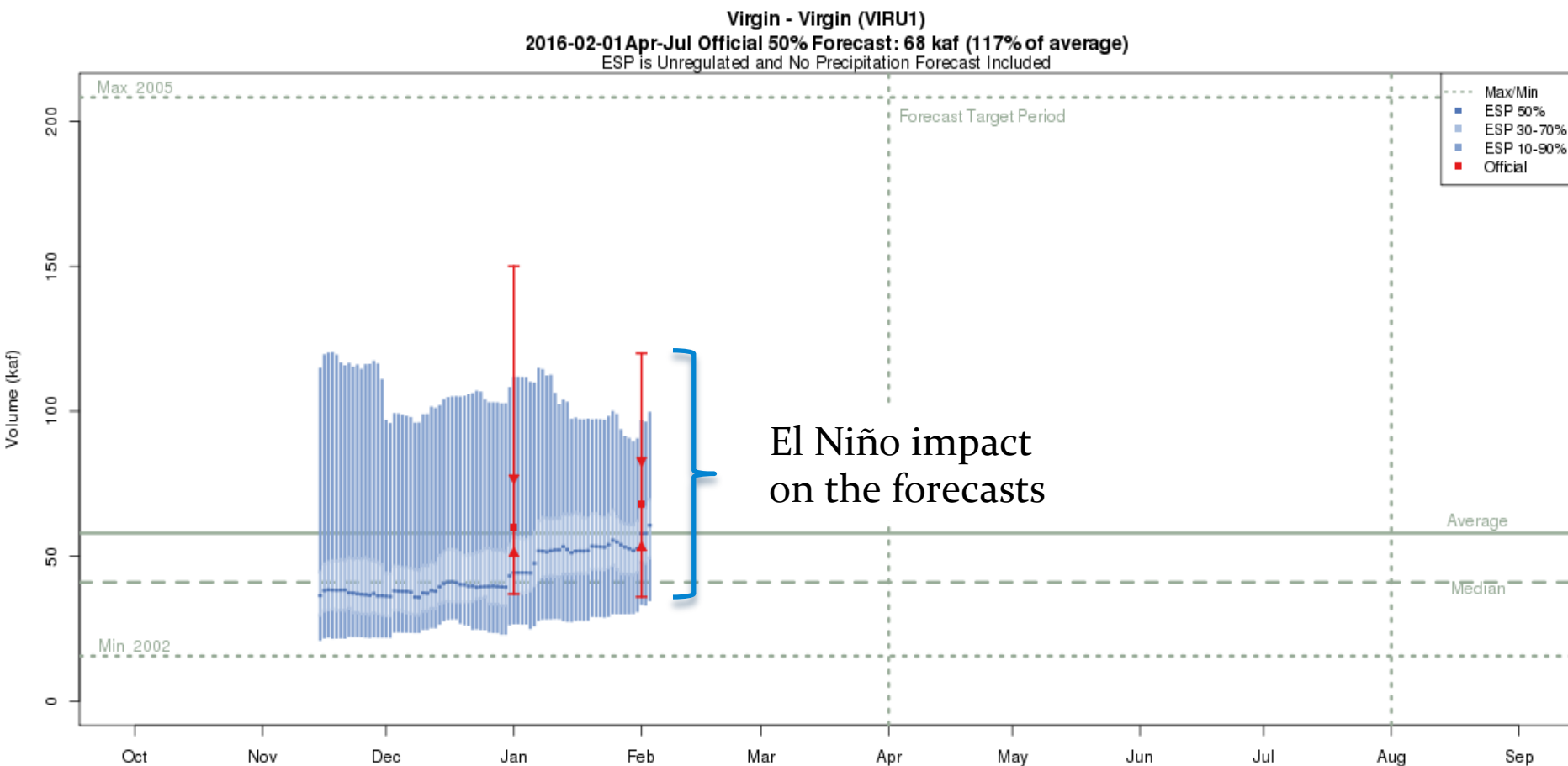


The latest (2016-02-03) 50% ESP forecast is 837 kaf.
Plot Created 2016-02-03 15:58:57, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.

Forecast Evolution Plot – McPhee Reservoir

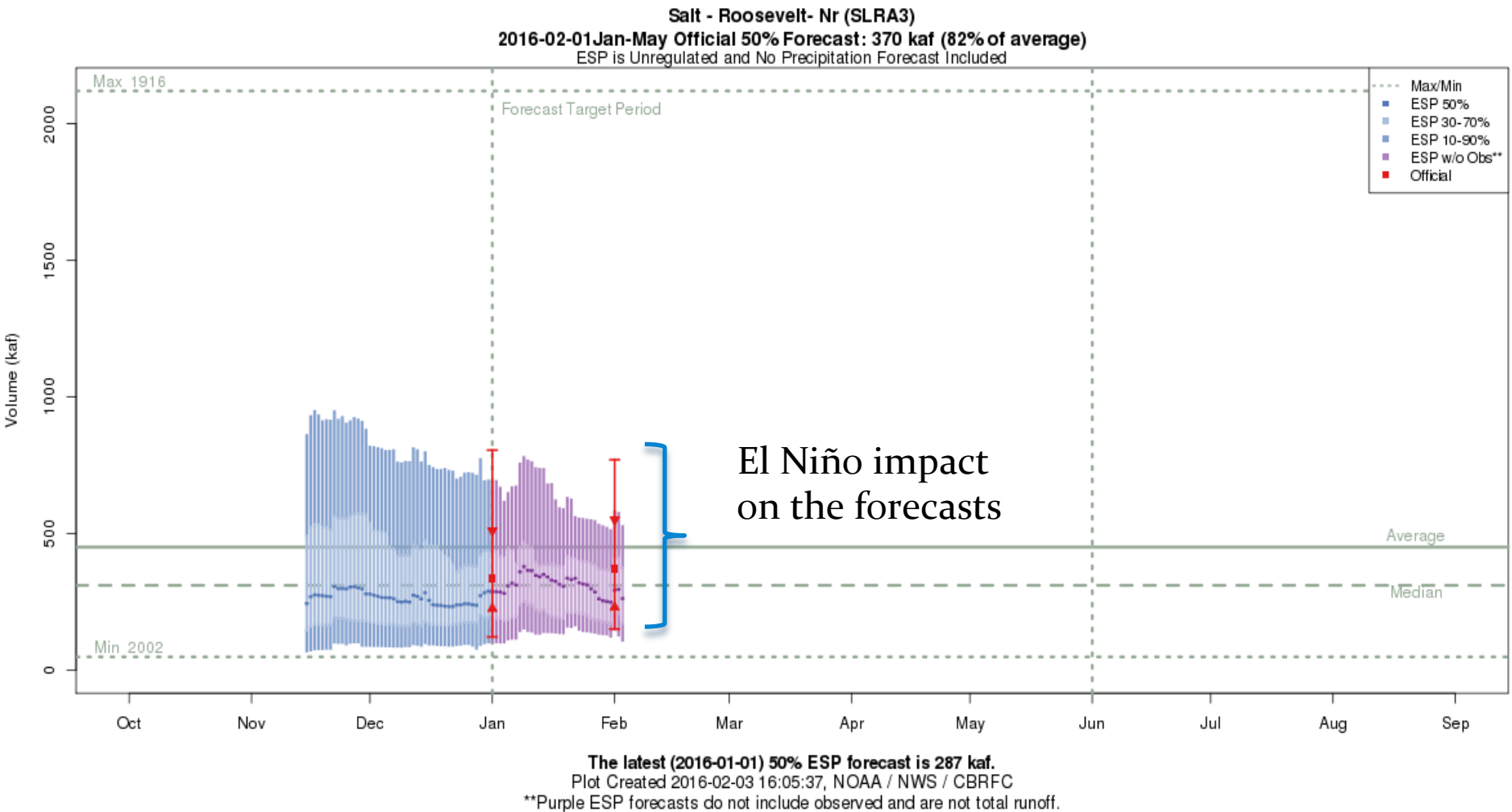


Forecast Evolution Plot – Virgin River

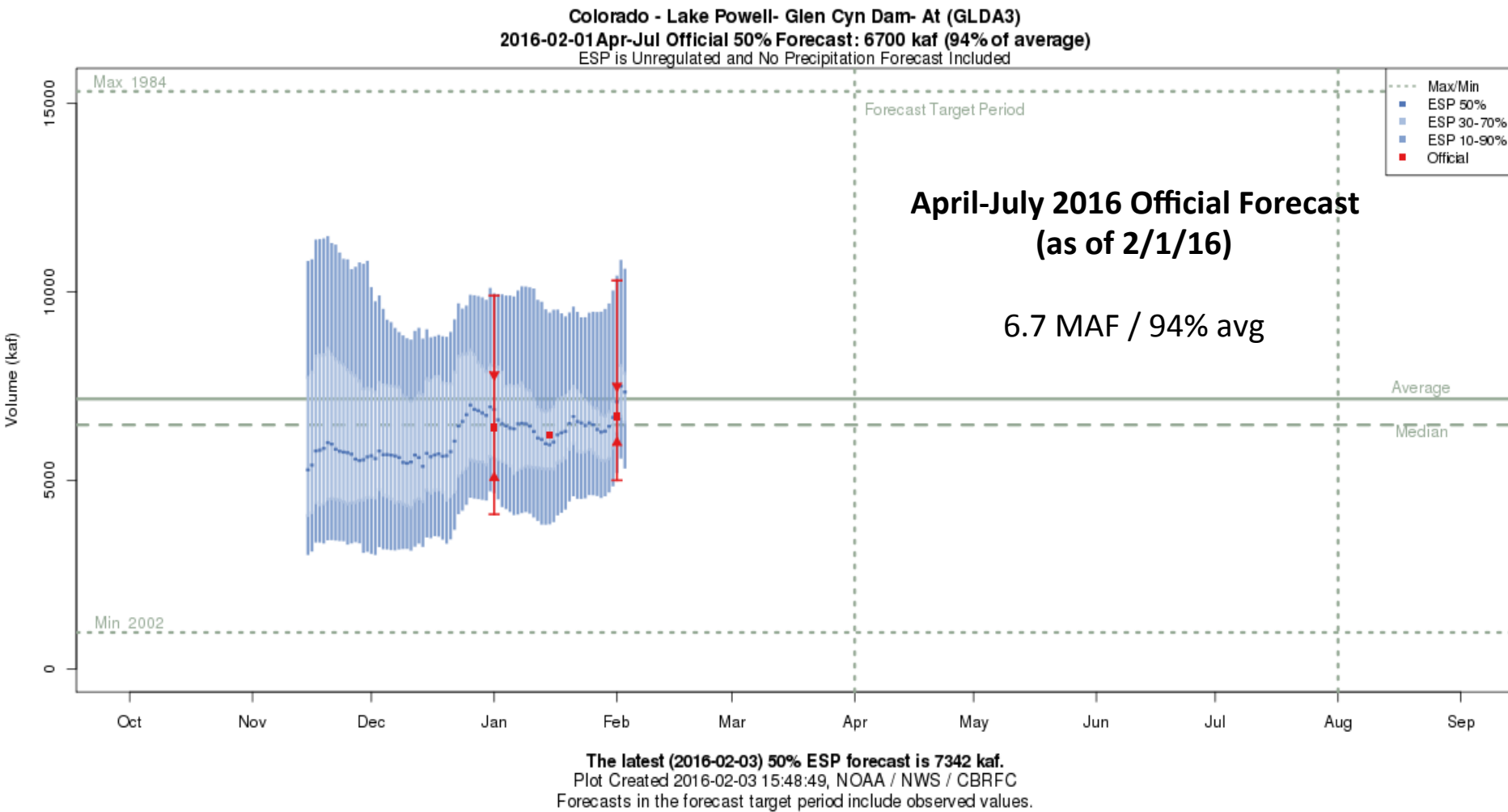


The latest (2016-02-03) 50% ESP forecast is 61 kaf.
Plot Created 2016-02-03 16:10:45, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.

Forecast Evolution Plot – Salt River-Roosevelt Res



Forecast Evolution Plot – Lake Powell



Forecast Impacts Summary

Improvement in snowpack conditions

- Northern Great Basin

- Parts of the Yampa River Basin

Overall snow situation is fairly good

- Exceptions include eastern half of the Duchesne River Basin and Green River headwaters above Fontenelle Res.

Significant Snowpack

- Dolores, Sevier River Basin, Dolores River Basin, Verde/Tonto

- River Basins, South Central Utah (Smaller Green / Colorado tributaries)

Below normal (average) soil moisture is widespread

- Very low Great Basin

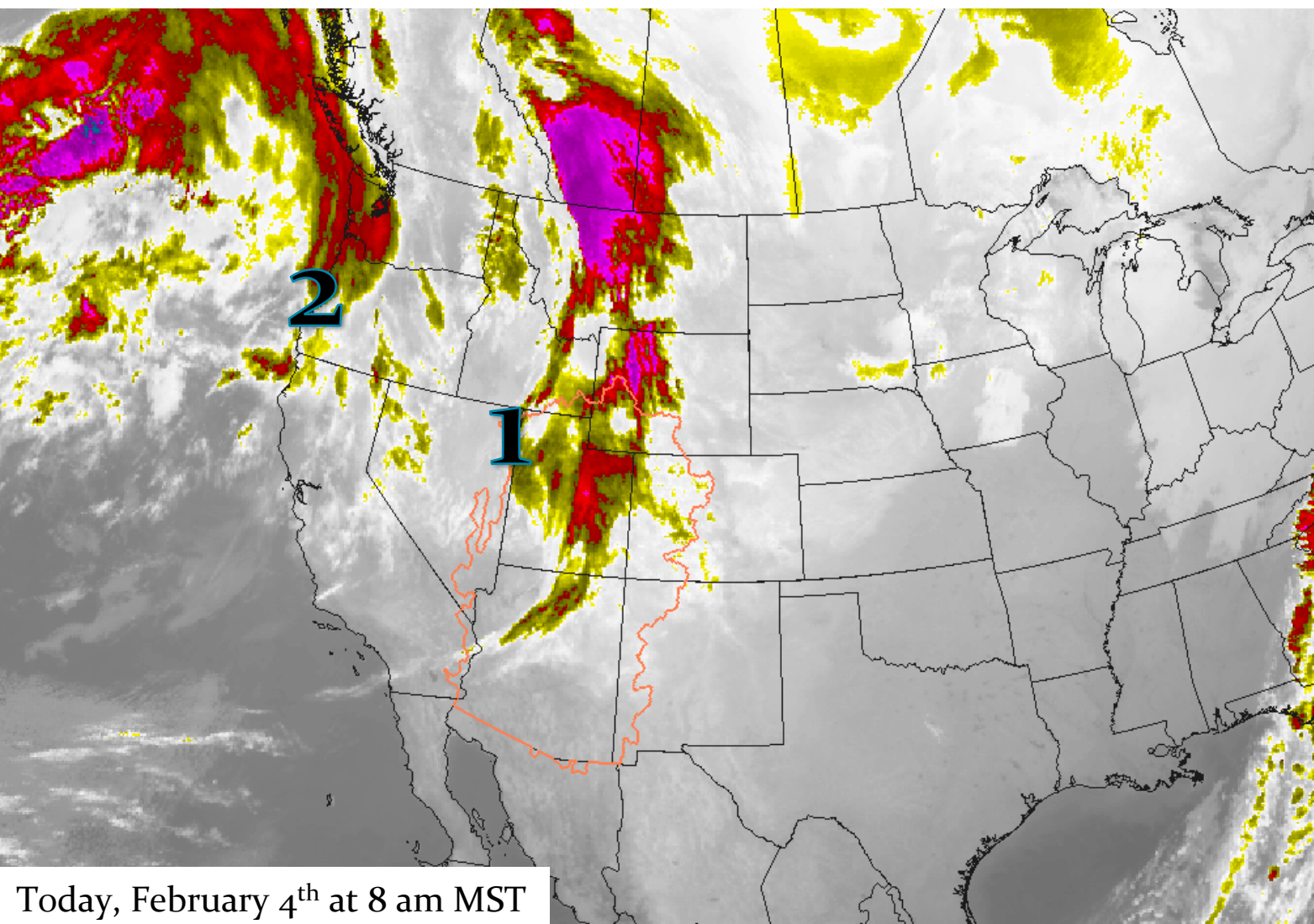
- Some exceptions most notably the San Juan / Dolores

Strong El Niño event is expected to impact runoff Lower Colorado Basin

First half of February looks dry

Upcoming Weather

- 1 – Southern extent of a weak storm system moving through the area. Splitting and weakening with minimal precipitation likely.
- 2 – Weakening storm system will move through eastern ID / western WY tonight. Only light precipitation amounts at high elevations are expected

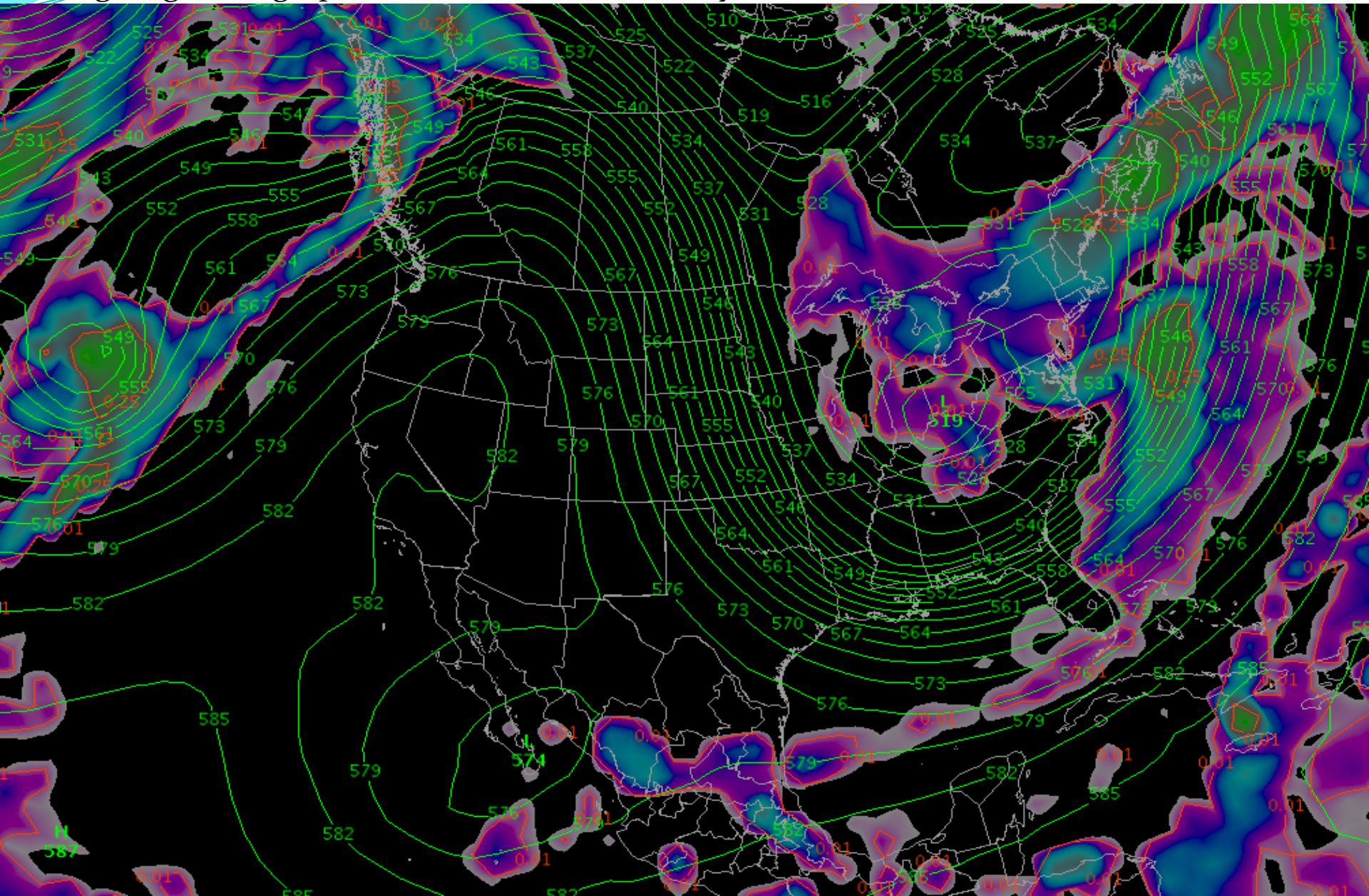


Today, February 4th at 8 am MST

Upcoming Weather

Strong ridge of high pressure over the area – Dry Conditions

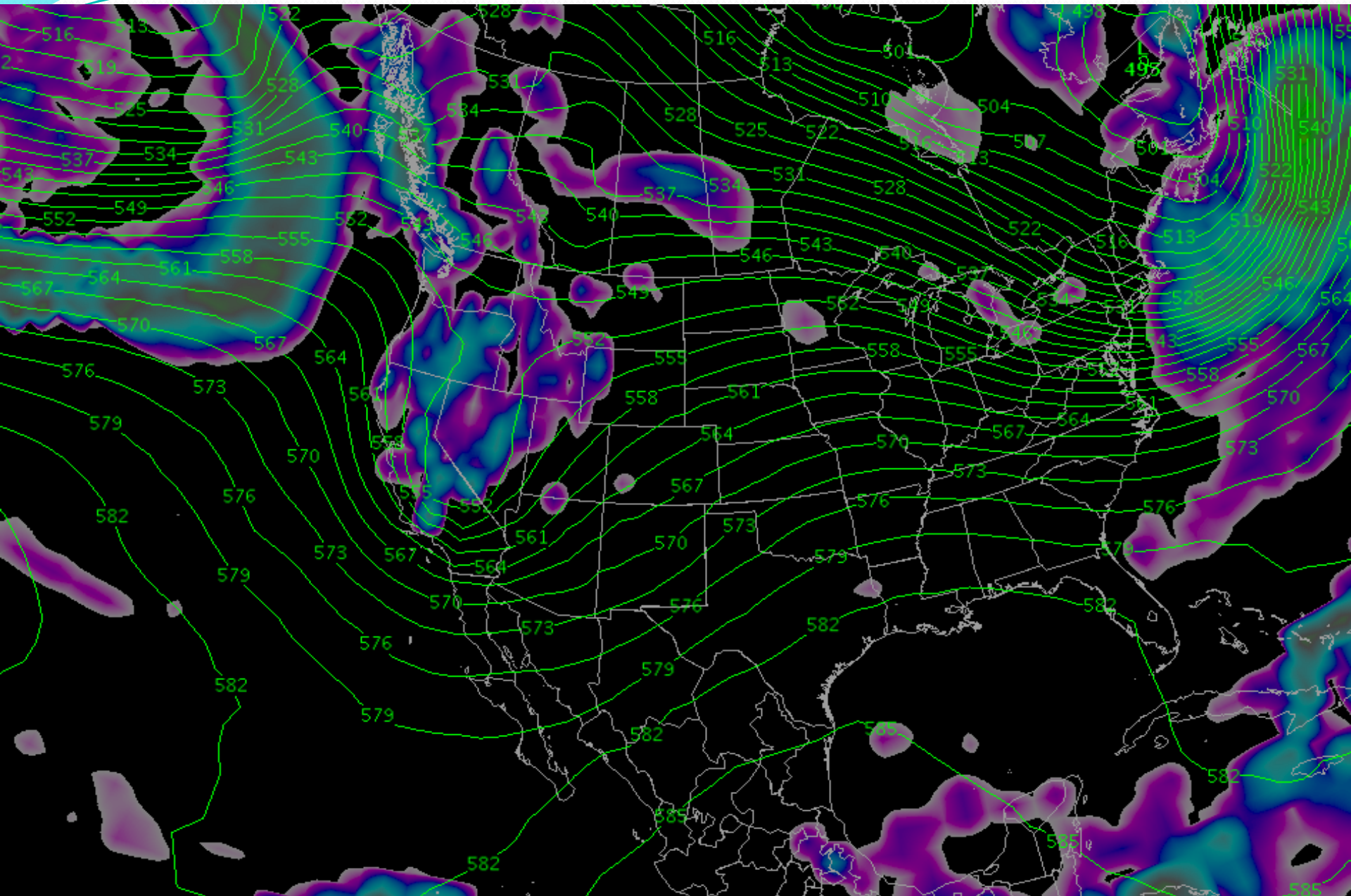
Tuesday February 9th



Upcoming Weather

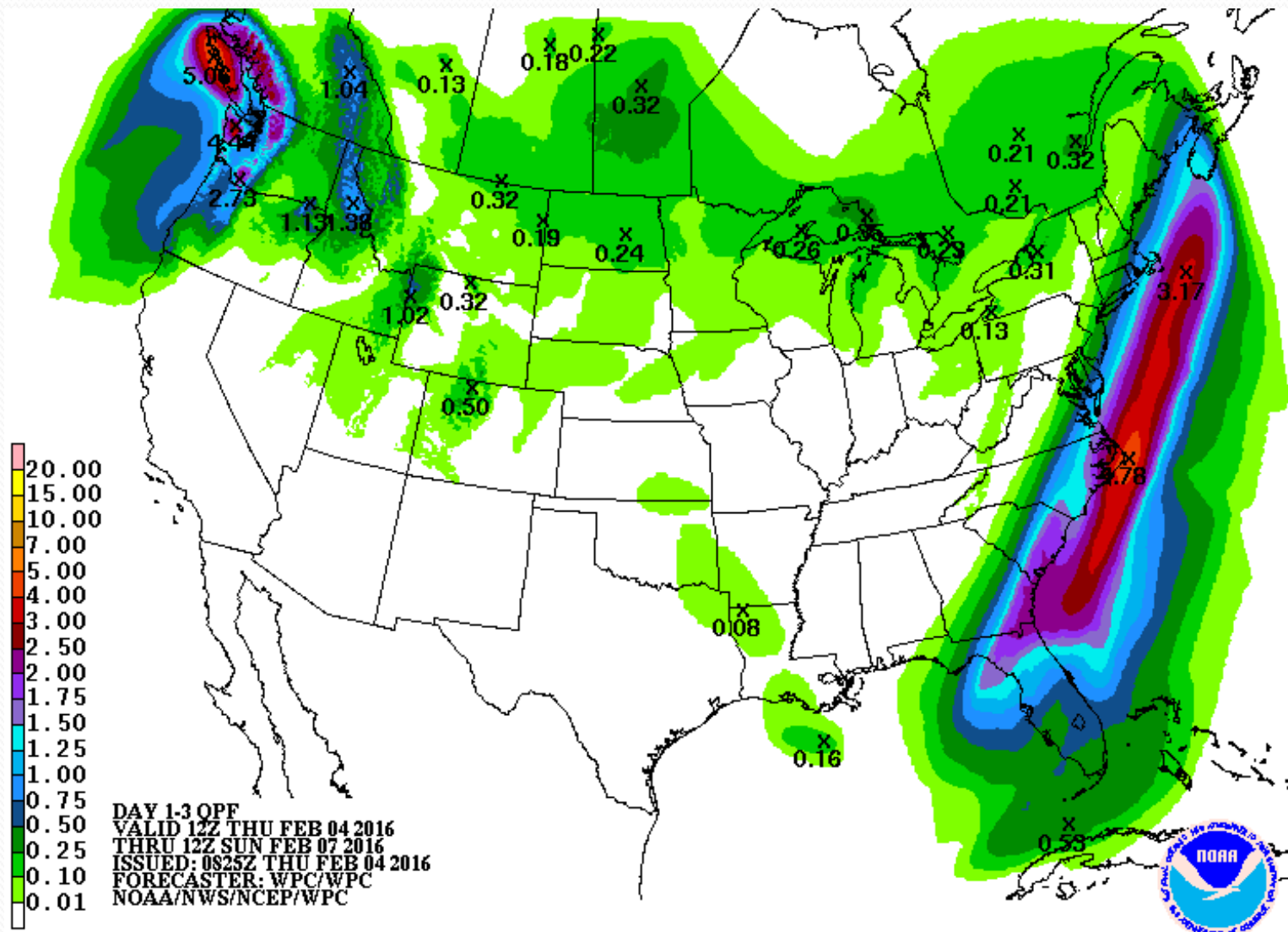
First chance of precipitation but weakening and impacts south

Sunday February 14th



Upcoming Weather

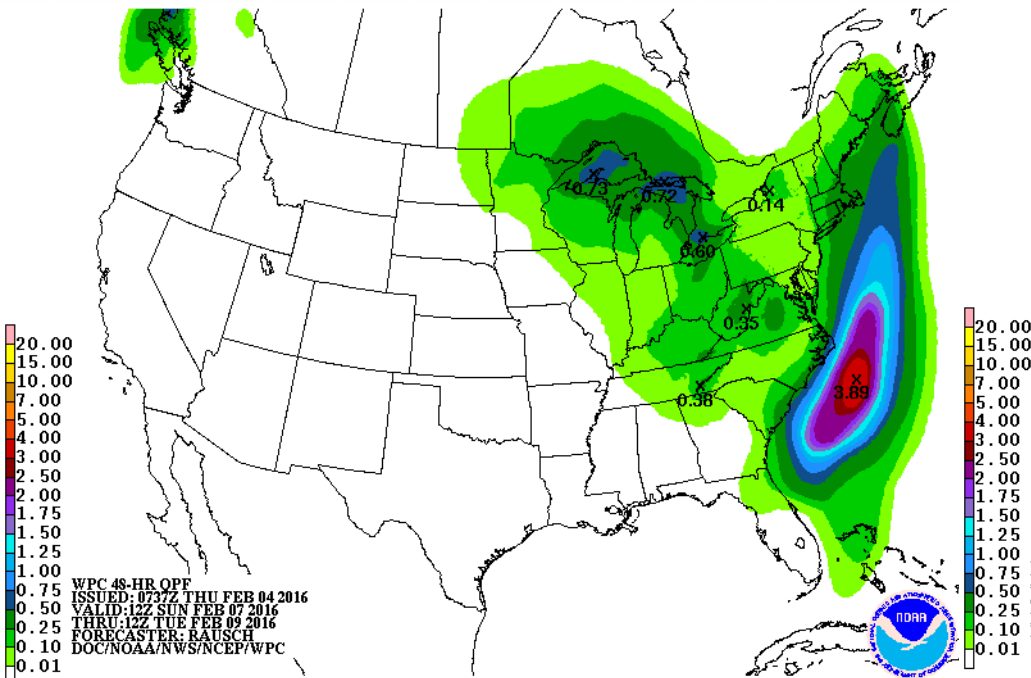
NWS Weather Prediction Center - Precipitation Forecast February 4th-February 7th



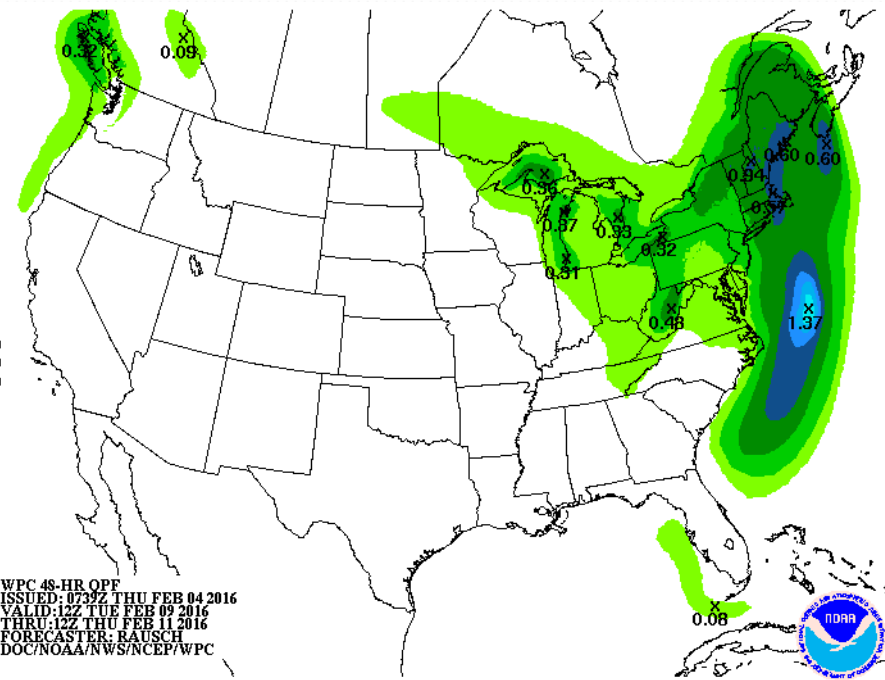
Upcoming Weather

NWS Weather Prediction Center - Precipitation Forecast

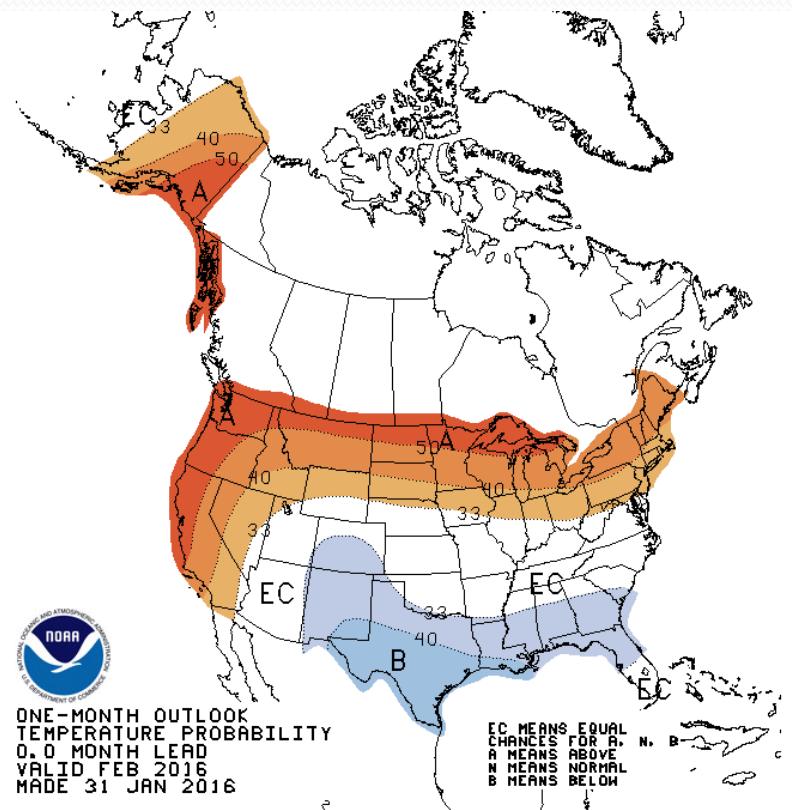
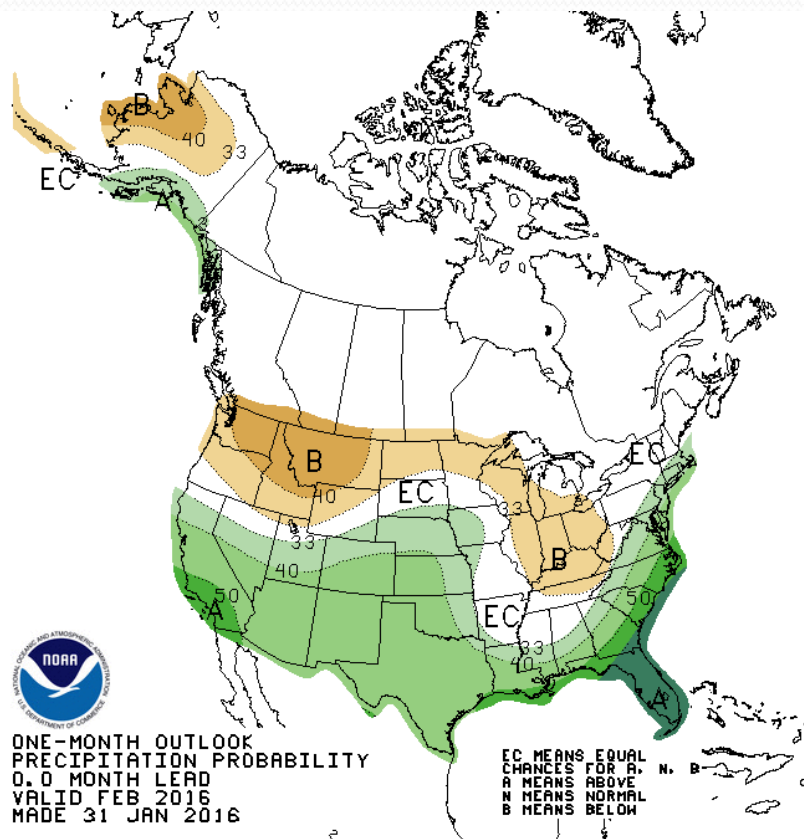
February 7th - 9th



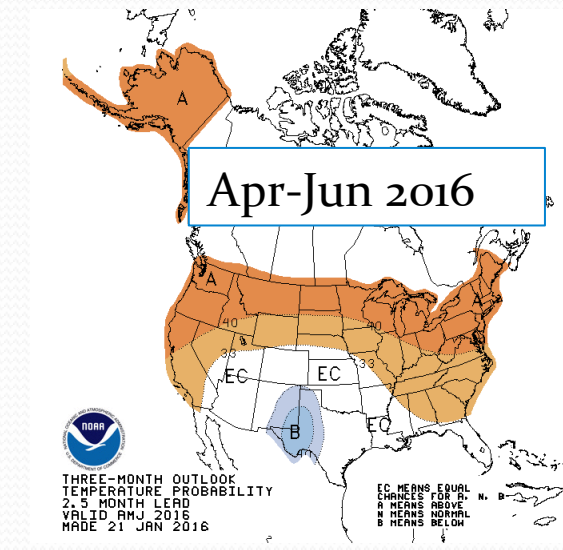
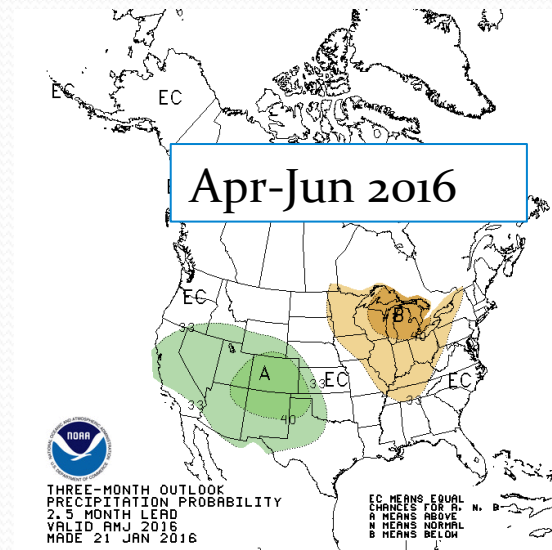
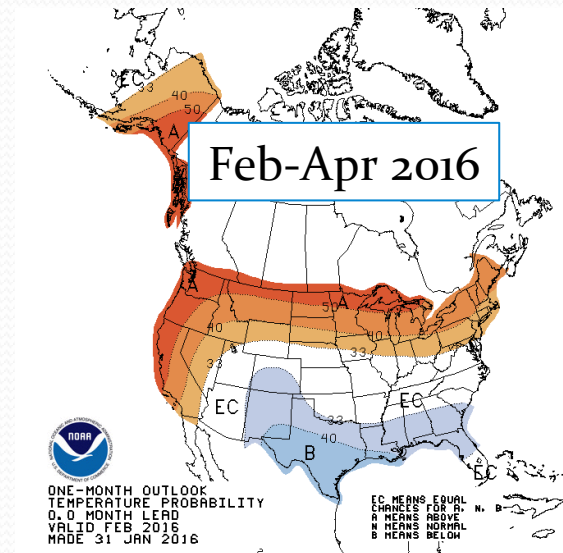
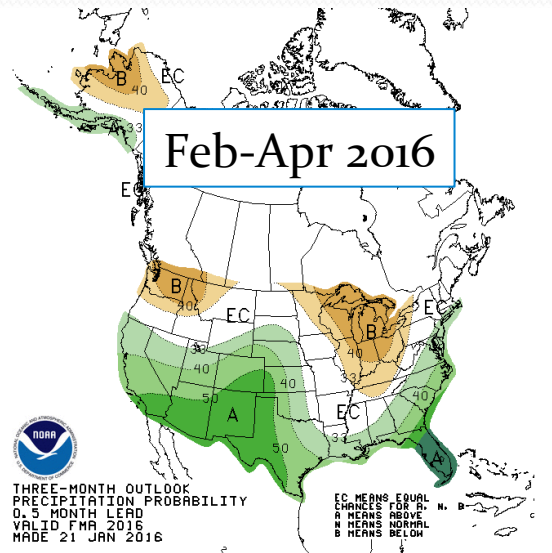
February 9th - 11th



Climate Prediction Center 30 day outlook for February 2016



Climate Prediction Center – 3 month outlooks



Soil Moisture - Fall - 2015 (November 01)
(Moisture Averaged by Basin)

% Average

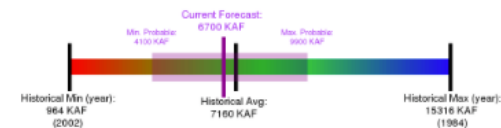
- <500%
- 300-500%
- 200-300%
- 150-200%
- 130-150%
- 110-130%
- 100-110%
- 90-100%
- 70-90%
- 50-70%
- 30-50%
- 0-30%

Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.dri.noaa.gov



Period	Obs to Date	Full Fcst	%Avg
Apr-Jul	0	6700	94%
Water Year	1523	9923	92%

Area	Oct	Nov	Dec	Jan	Water Year
UC-Powell	89	100	127	107	107

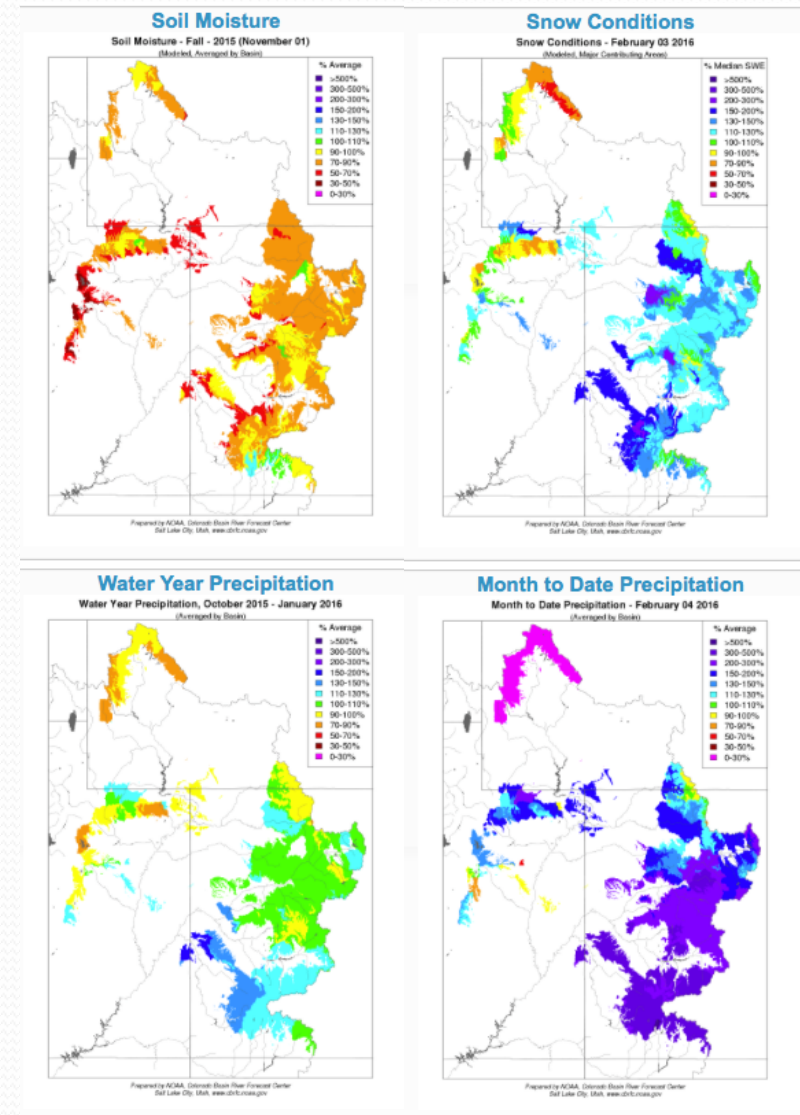


Under 'Water Supply' Menu

Upper Colorado Situational Awareness

MAPS:

- Values are averaged over CBRFC-defined basin elevation zones used in the hydrologic model and displayed as a percent of average or median.
- Trimmed to those areas (higher elevations) that contribute the most to runoff.
 - Snow maps are also trimmed by the amount of current snow water equivalent (< 2" not included).
- Data types:
 - Fall Modeled Soil Moisture (% Average)
 - Current Modeled Snow Water Equivalent (% Median)
 - Water Year Precipitation (October to end of last complete month)
 - Month to Date Precipitation



Upper Colorado Situational Awareness

TABLES:

- Lake Powell Unregulated Inflow
 - Latest available observations and forecasts for the April-July and Water Year (October-September) periods.
- Lake Powell Basin Precipitation
 - Monthly (and water year to date total) percent average precipitation for the area above Lake Powell.
 - Based on the 'trimmed' areas displayed on the precipitation map on the page.

**Lake Powell Unregulated Inflow (kaf)
Water Year 2016 Forecasts as of 2016-02-01**

Period	Obs to Date	Full Fcst	%Avg
Apr-Jul	0	6700	94%
Water Year	1523	9923	92%

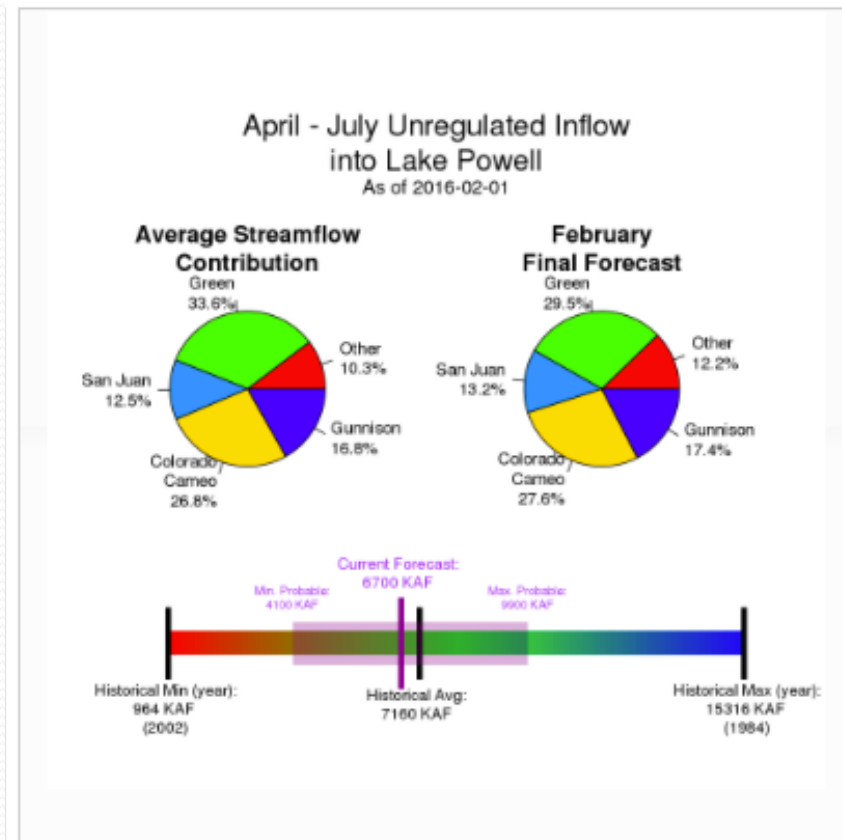
**Lake Powell %Average Precipitation
Water Year 2016**

Area	Oct	Nov	Dec	Jan	Water Year
UC-Powell	89	100	127	107	107

Upper Colorado Situational Awareness

PIE CHARTS:

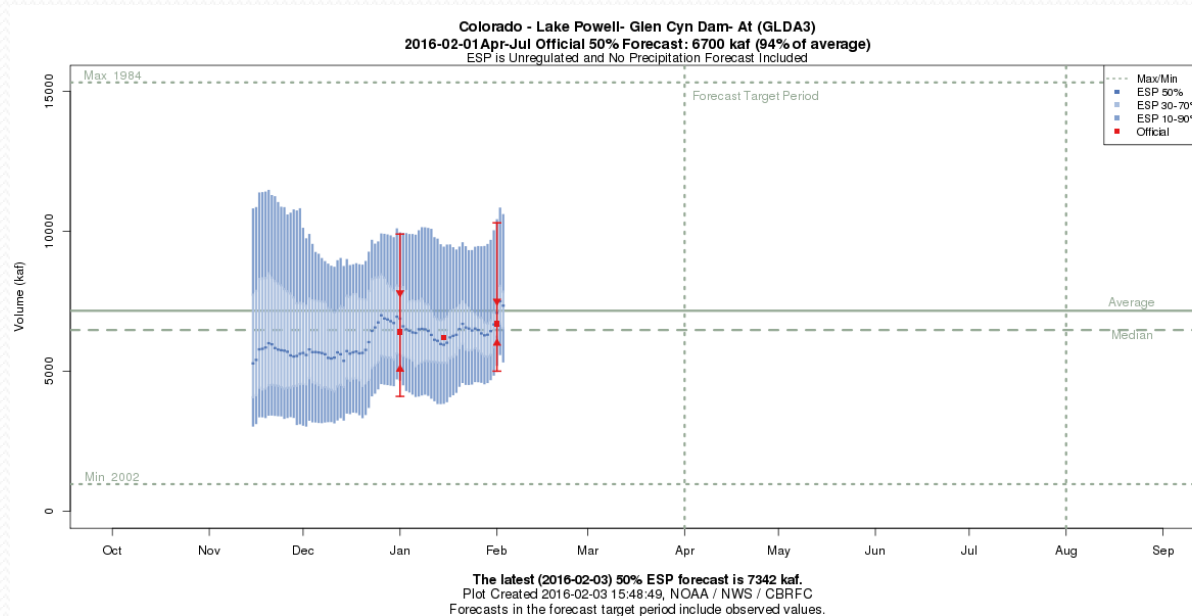
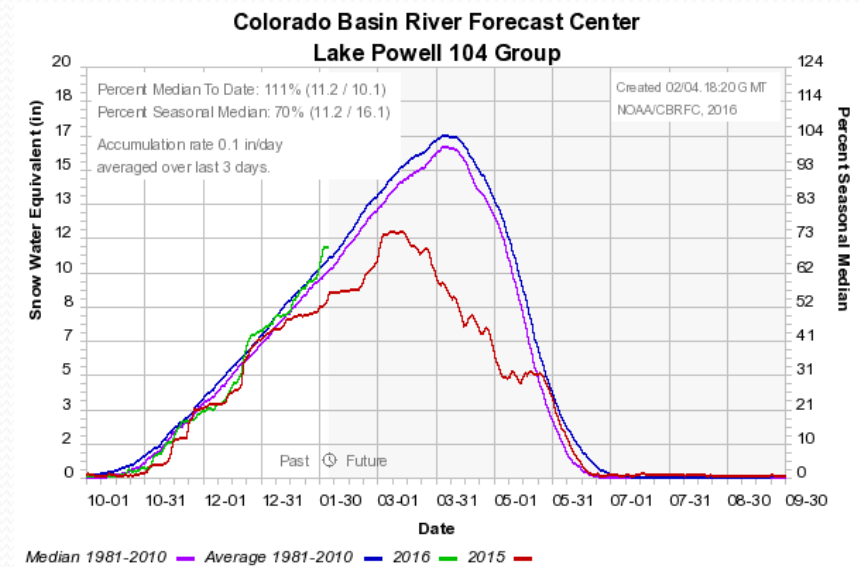
- Illustrate the relative contribution to the April-July runoff from major sub-basins.
 - Average contribution.
 - Contribution based on latest forecasts.
- Bar chart:
 - Latest 90%, 50%, and 10% exceedance forecasts (purple).
 - Historical Min, Max and 1981-2010 average values (black).



Upper Colorado Situational Awareness

MORE INFORMATION:

- Links to additional text and graphical information.

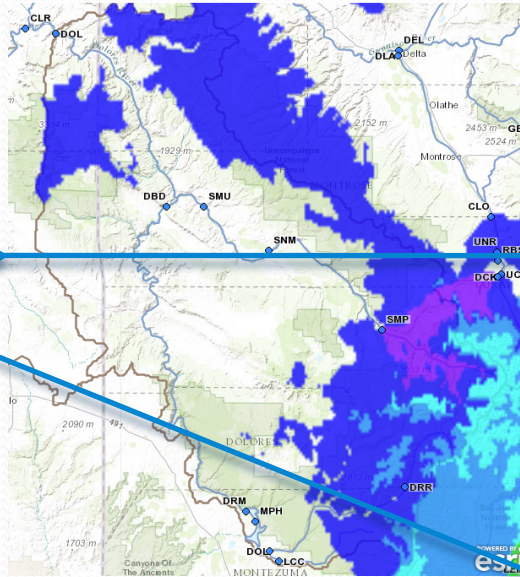


Numerous capabilities exist on our web site to access hydrologic information (www.cbrfc.noaa.gov)

Zoom to Area

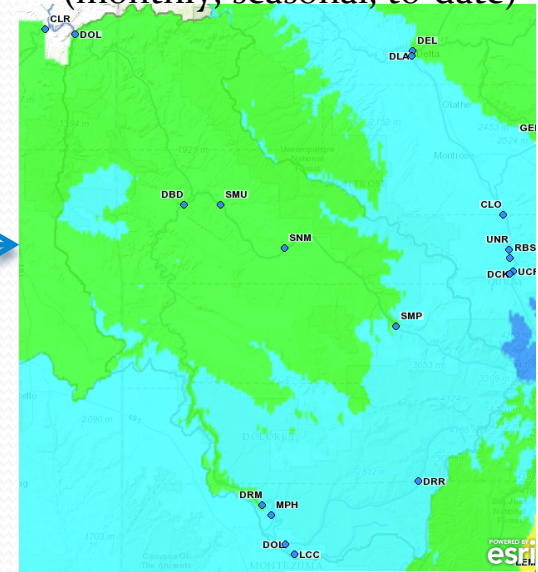
Entire CBRFC
Upper Colorado
Col abv Kremmling
Eagle-Roaring Fork
Gunnison
Dolores
Lake Powell
Green
Upper Green
White-Yampa
Duchesne-Price
San Rafael-Dirty Devil
San Juan
San Juan
Great
Bear
Weber
Six Creeks-Jordan
Provo-Utah Lake
Salt Lake

Model Snow

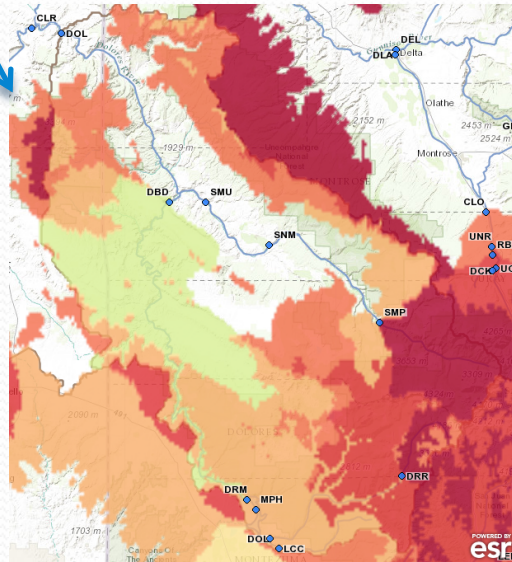


Precipitation

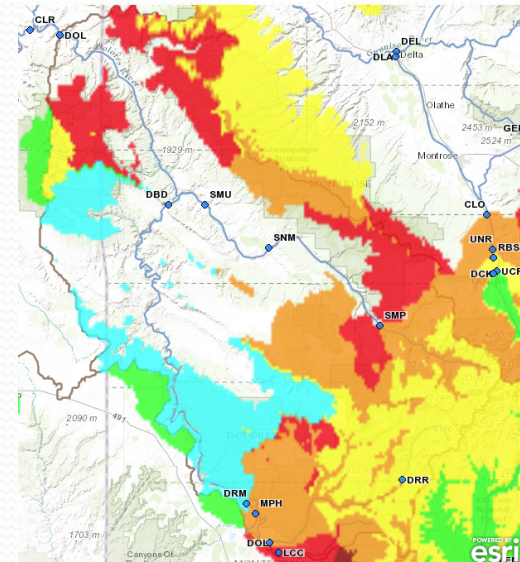
(monthly, seasonal, to-date)



Inches to saturation



Soil Moisture



We would like to
live demo these
capabilities

2016 water supply briefings

- 2016 monthly water supply briefings
 - Friday Mar 4th @ 1 pm MT
 - Thursday Apr 7th @ 11 am MT
 - Friday May 6th @ 1 pm MT
- Accessing hydrologic information via the CBRFC web page (live web page demo) – will schedule something later in February.
- Peak flow briefing early March. Additional briefings scheduled as needed.
- Date/Times are subject to change. All registration information will soon be posted to the CBRFC web page.

CBRFC Contacts

Please contact us with any questions

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Tracy Cox – Lower Colorado Basin, Virgin, Sevier Focal Point

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Paul Miller – Great Basin Focal Point

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